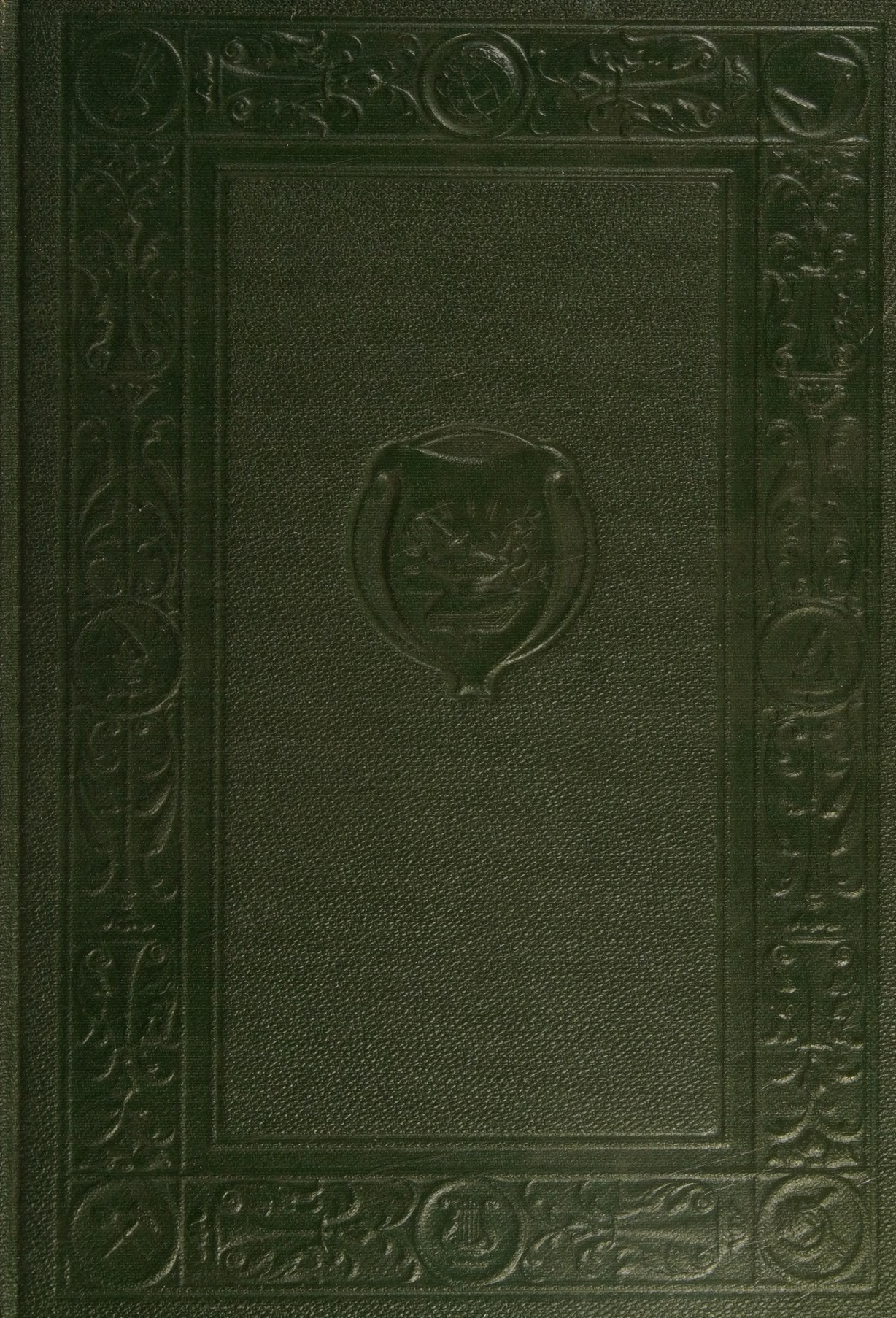

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THE SOURCE BOOK

An International Encyclopedic Authority
written from the New World Viewpoint

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authorities in the fields of
Literature, Art, and Science

Volume X

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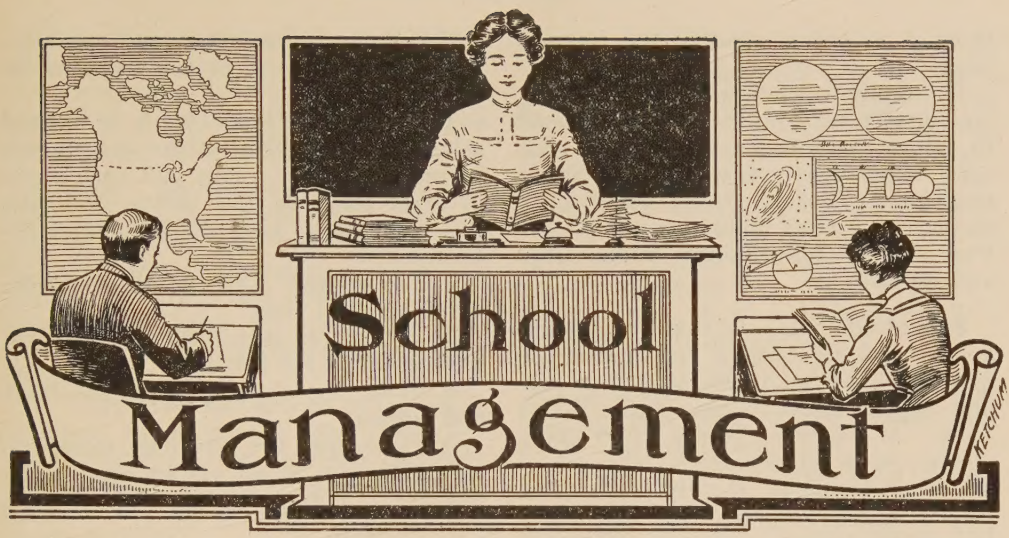


PROBLEMS

In preparing for your first term you find several perplexing problems which you must solve. These are:

1. **Uniformity.** Nearly every school has a prescribed course of study which is uniform throughout the city, county or state, as the case may be, and you must keep the classes in your school up to the required grade. Unless you have had the advantage of normal training you may at first find this somewhat difficult.

2. **Relief.** You naturally look for assistance in the solution of this and other problems. The manual containing the course of study should give such directions as will materially aid you in planning the work. If, however, you feel in doubt, you should, before beginning school, consult your superintendent. He will give you valuable suggestions and point the way out of whatever difficulties may beset you.

3. **Interest.** How are you to interest your pupils in their work so as to keep them contented, happy and enthusiastic? Upon the right solution of this problem, to a very large degree, depends your success or failure. The pupils who are interested are always constant in their attendance and enthusiastic in their work. In a school where interest prevails, the troublesome questions of discipline, tardiness and absence seldom, if ever, arise.

4. **Reputation.** From the moment you enter the schoolroom as a teacher your reputation is at stake. The reports that the pupils take home at the end of the first day will exert a strong influence towards fixing your standing in the community. You will be rated as "all right," "no good" or "doubtful." It is needless to say which report you wish to merit.

5. **Position.** If you are an ambitious teacher you will regard your first school as a stepping stone to a better position and a higher salary. If you succeed from the outset these are open to you as a natural consequence. In preparing for your work, then, study carefully the suggestions and directions on the following pages.

THE SCHOOLHOUSE AND GROUNDS

Inspection. You should become acquainted with conditions with which you have to reckon before beginning school. If possible, visit your schoolroom several days before the opening of school. This gives you opportunity to see that every-

thing is in order and that the room is clean.

If you are to teach in a graded school, your preliminary duties will be confined to seeing that crayon, erasers and such other material as you wish to use are in readiness. If you are to teach in a rural school your inspection should extend to the schoolhouse, outbuildings and grounds.

School Officials. In case the schoolhouse needs cleaning or any repairs are necessary, call upon the school officials and request them to have these things done. If possible, secure from these officials some knowledge of the school and the community. If your predecessor has left a record of the work done under her administration, secure it and use it in planning a temporary program.

You may not get all you want. In case you do not, accept gratefully the favors granted and do the best you can under the circumstances. Success will soon secure further favors.

Always remember that the school officials represent the district in all purely local matters, and that they should always be treated with the courtesy and respect due their office.

INITIAL STEPS

Previous Preparation. Before entering upon the work of the first day of school, you should have, as far as possible, the work for the day planned. From the course of study and record of work done the preceding term, you should determine upon the lessons to be assigned each class.

Select an opening song that all are familiar with.

Think out carefully what you are going to say to the pupils when you call the school to order.

Determine the order upon which you will proceed in the preliminary organization of the school.

Preliminary Organization. The first few minutes after you have called the school to order are all important. You will find the following suggestions helpful in enabling you to use them to the best advantage.

1. Be early. If you teach in a rural school, you should be at the schoolhouse before the pupils. This will enable you to greet them as they arrive, and take the first step towards becoming acquainted.
2. Be prompt. Call the school to order exactly on time.
3. Proceed at once with the plan you have outlined for the day.
4. Make the opening exercises brief and pointed.
5. Following the opening exercises, assign lessons to all classes except the primary. This you can look after a little later.
6. As soon as lessons have been assigned and all are at work, distribute to all the pupils who can write, slips of paper upon which the names and ages of the pupils are to be written. If you collect these yourself, you will the more readily associate the name with the pupil.
7. Follow as a preliminary program that used the preceding term.
8. Proceed in an orderly, dignified but pleasing manner from one duty to another, avoiding any appearance of haste, but without hesitation.
9. From the beginning, show yourself mistress of the situation and you will at once win the confidence and respect of your pupils.

PERMANENT ORGANIZATION

Program. As soon as you become acquainted with your school a permanent program should be arranged. This program should provide for the work of the entire school for each period in the day. This means that the study periods of the pupils should be regulated as well as their recitations. Otherwise, many pupils will be prone to spend more time than is necessary on subjects in which they are interested, to the neglect of those which are equally important.

When the program is completed, a neatly written copy should be posted in the schoolroom, where it will be easily accessible to all. It should then be scrupulously followed.

Seating. At first it is wise to allow the pupils to retain the seats they occupy on the first day, with the provision that you reserve the right to make any changes you think best, later on. In the permanent seating of the school, you should be guided by the following principles:

1. Adaptation of the seat to the pupil. The seat should fit the pupil and be of such height that his feet rest naturally on the floor; otherwise he will be uncomfortable, and is liable to be permanently injured.

2. Convenience for recitation. If the schoolroom is provided with recitation seats, this may not be necessary, but if pupils recite from their seats, it is necessary that those in the same class occupy the same section of the room.

3. Defective Pupils. Pupils whose sight or hearing are defective should be favored by being placed as near the blackboard and the teacher as practicable.

Rules and Regulations. A few simple regulations for the orderly running of the school are necessary. These should pertain to calling and dismissing school, calling and dismissing classes, leaving the room and the use of reference books or other material.

Regulations of this sort should be as few and as simple as possible, and should be operated by a code of signals, so that the school will not be disturbed by calling and dismissing classes or by the wants of individual pupils.

A simple system of signals, which should be agreed upon by teacher and pupils, will save time and confusion. The following system has proved successful:

1. For calling classes. The teacher stands in front of the seats in which the class is seated. When she brings her pencil to a vertical position the pupils rise and stand by their seats. At the return of the pencil to a horizontal position they march in regular order to the recitation seats. The same signals are used for dismissing the class.

2. Hand signals. An open hand raised with the palm outward indicates that the pupil wants assistance; raised with only the index finger open, it is a request to leave the room; with two fingers open, it is a request to communicate with another pupil.

The signals can be answered by a nod or shake of the head, and none but the pupil concerned and the teacher need know anything about them.

Privileges of the room, such as use of reference books and library and other like matters, should be regulated as conditions may indicate. The greatest freedom consistent with the best work of the school should be allowed; but the teacher must watch to see that no one abuses the privileges granted.

DISCIPLINE

Importance. Good order is essential to the success of both teacher and pupils, and the maintenance of order is often a source of anxiety to an inexperienced teacher. In a well-regulated school the question of discipline will seldom if ever arise, and from the beginning the teacher should find means for preventing disorder, instead of devising punishments for various offenses. The late Dr. Emerson E. White in his *School Management* states the great ends of school government to be as follows:

1. To train pupils in self-control and self-direction—self-conduct.

2. To train the will to act habitually from right motives. Among the great occasions for will training are the development of the school virtues—punctuality, regularity, neatness, accuracy, silence, industry and obedience; also the strengthening of the general virtues—truthfulness, good will, kindness, courtesy, generosity, cheerfulness, unselfishness, honesty, justice, consideration for others and the like.

In order that these ends may be reached, the following irregularities should be prevented:

Absence and Tardiness. Irregular attendance is demoralizing to the school as a whole, as well as to the pupils directly affected. Occasional cases of absence and tardiness are unavoidable and are not included in this discussion. Chronic cases, however, demand prompt and careful attention. The teacher's efforts should be along two lines: First, she should make her opening exercises so interesting that every pupil will have a strong desire to be present; in fact, will feel that if he is absent the first ten minutes he has lost something out of the day. This will help habitually tardy pupils to overcome their tendency to loiter on the way to school.

Second. The parents of pupils frequently tardy or absent should be seen. They may not know that their children are tardy or absent. Again, they may not realize the value to the children of time spent in school, and require too much work from them to enable them to get to school on time.

Conditions of this sort must be handled tactfully. But by showing her interest in the father and mother as well as the children, the teacher will, by kindly persistence, in time win the parents to her view.

Whispering. Children do not realize the value of time, neither do they have any strong realization of self-restraint for the sake of others. They like to talk with each other; hence they are prone to whisper. Whispering, however, is one of the most prolific sources of disorder and so far as possible should be prevented. How can this be done?

1. By conference with the pupils, lead them to see that whispering causes loss of time, disturbs others and has an injurious effect upon the school. To these propositions they will readily agree. When this agreement is reached, secure a vote on the proposition that each will not whisper for a week. The plan will be found to work so well that at the end of the week a vote to continue it for another week can be readily secured, and soon the regulation voted by the pupils will become permanent.

2. Do not make any hard and fast rule against whispering. It leads to dissatisfaction and deception on the part of the pupils.

3. See that your program for study is faithfully followed. Idle pupils are the most persistent whisperers. Those interested in their studies seldom think of communicating with their neighbors.

4. Now and then, between recitations, take two or three minutes for the pupils to get books and ask questions of others. This will do away with most of the causes for communication at other times, and afford a brief rest.

Disorder. Disorder is misplaced activity, and it ceases when the causes for it are removed. A school is orderly when each pupil does his work in a quiet, systematic manner, and without interfering with others, and general disorder indicates wrong conditions. Among the chief sources of disorder, besides tardiness and whispering, are the following:

1. Foul air. This is one of the most prolific sources of restlessness, and the ventilation of the room should be carefully watched. If the school becomes restless, suspend work, open the windows and let the pupils march two or three times around the room. This will fill the room with fresh air and work off surplus energy.

2. Irregularity on the part of the teacher. Unless classes are called and dismissed promptly according to the program, the pupils soon fall into irregular habits of study and waste much time. Unless the teacher is orderly she cannot expect the pupils to be so.

3. Scolding and nagging. Children are remarkably sensitive to temperament, and nothing irritates them more than constant fretting on the part of the teacher. Keep sweet; be firm; but always be pleasant.

Punishments. Rules necessarily imply penalties for their violation, but these penalties should be natural consequences of the violation of the rule, instead of some artificial punishment. To illustrate: If John is a quarrelsome boy and always causing trouble on the playground, he should take his recesses by himself until such time as he can play peacefully with the others. If any pupil abuses a privilege, deprive him of that privilege until he is willing to conform to the regulation which is necessary to the good of all. Punishments of this sort are fair and reasonable, and so impress the pupils. In a well-regulated school there is seldom any cause for punishment.

THE SCHOOL ATMOSPHERE

Relative Importance. The most important factor in securing and maintaining good order is the general school spirit, or what is often termed the *school atmosphere.*

It consists of a combination of relations hard to define but which may be expressed in the term *loyalty*—loyalty of the teacher to the pupils; loyalty of the pupils to the teacher; and loyalty of the pupils to each other and to the school as a whole.

Let us look at some of the conditions essential to securing a right school atmosphere.

The Schoolroom. The church which does not strengthen the feeling of reverence in those who enter is architecturally a failure, in this particular respect. Likewise the schoolroom which does not impress the pupils with a feeling of respect for the room and what it contains falls far short of its purpose.

Children have little respect for a dirty room, defaced or even bare walls, and battered funiture, and any schoolroom possessing one or more of these characteristics exerts an influence against the right school spirit.

The schoolroom should be:

Clean
Attractive
Orderly

Concerning a clean room, there should be no occasion for emphasis, but, unfortunately, many schoolrooms are sadly neglected. Janitor work is poorly done, and each morning pupils find their desks and other furniture covered with dust. The floor is seldom scrubbed, and this begets carelessness about muddy boots, especially in the country. The room should be cleaned daily with as much care as any room in the home.

The walls, ceilings and windows should be attractive. Kalsomine is inexpensive, and coloring the walls with a soft tint adds much to the appearance of the room and also protects the eyes of the pupils. A few choice pictures hung on the walls always exert a softening influence. The windows should have shades to regulate the light. If curtains made of some attractive material can be added they make the room more homelike.

The arrangement of furniture and apparatus should be orderly. Everything should have a place, and when not in use it should be in its place. A disorderly room contributes to disorder in the school. Both teacher and pupils should take pride in keeping the room in good order.

Apparatus. Every school should be provided with suitable tools for its work. These consist of blackboard, crayon and erasers. Maps and a chart for the primary reading class and sets of common weights and measures are also essential. A globe is also a good investment, and teacher and pupils will think of other articles that they can add from time to time.

School Library. Every school should have a library of carefully selected books. Whatever other books the library may contain, for pupils above the third grade it should have a good dictionary, and a set of reference works, so arranged and written that the pupils can readily find the subject they want, and easily understand what they read. This new, ten volume REFERENCE WORK is a good example of such a set of books.

Books on history, geography, literature and works of fiction should also be found on the shelves. If a few books are added each year, it keeps the interest in the library fresh and active.

In making the selection see that there are some books suited to each grade in the school. A few children's periodicals are always helpful.

The Program. We have already referred to the daily program, but we wish to speak of it here more in detail.

Inexperienced teachers seldom realize the value of a good program. It is the regulator which keeps the school machinery in steady motion.

The program should:

1. Provide work for each pupil every hour in the day.
2. So arrange the work as to give variety in study and recitation. That is, difficult subjects should alternate with those that are comparatively easy.
3. If the school is ungraded, provide study and recitation periods of different lengths for different grades, giving the primary the shortest periods, and the most advanced grades the longest.
4. Make provision for opening and other general exercises, and for recitation periods. When the program is adopted it should be religiously followed. If the teacher does not conform to her own time table she cannot expect the pupils to do so.

Moreover, a program which prescribes study periods is one of the greatest incentives to good work. Many pupils are inclined to waste time in study; that is, they take longer than is necessary to accomplish their task. If a lesson can be learned in 15 minutes it is injurious to the pupil, mentally, to allow him to spend 20 minutes on it. Dawdling leads to mental laziness. Lazy pupils become dissatisfied and may become disorderly. Children who are busy at tasks they enjoy are invariably happy.

The Pupils. A school may be likened to a little democracy over which the teacher presides and in which the pupils are citizens. If these citizens agree upon most matters harmony prevails; persistent disagreement causes discord.

In some schools several nationalities are represented among the pupils. If the parents have become Americanized the pupils usually hold the same ideals of government and society. But if the parents of some have recently come from another country, to these children the school is a new world, and the teacher should see that they are made to feel at home by committing them to the thoughtful attention of some of the older pupils. This will confer upon these pupils a sense of responsibility that will give them increased interest in the school.

Again, certain pupils should have specific duties to perform in relation to the school as a whole. Most of these duties pertain to general housekeeping, such as care of blackboards and erasers and the apparatus, care of the library, care of the school grounds, etc.

These duties should be passed around, so that during the term all pupils old enough to assume the responsibility should have opportunity to do so. Such a plan makes the pupils feel that the school is theirs, and they take pride in keeping it up to a high standard. A spirit of social equality and comaraderie should be fostered among the pupils at all times, and the teacher can exert a strong influence towards securing this much-desired condition.

The Teacher. More important than all the foregoing factors is the teacher, because she should be able to overcome all adverse conditions and convert them into powerful instruments for the making of a successful school.

Good Teaching. The first essential to a successful school is good teaching—teaching that sets the pupils on fire with enthusiasm because they become interested in every subject. Such teachng throws the burden of the work on the pupil, but so directs his efforts that he is constantly making new discoveries. When pupils are engaged in the quest for knowledge they work in harmony with

each other, and find little or no time for disturbing influences.

Good Management. The successful teacher is a good general. She plans her campaign at the beginning of the term, and then proceeds systematically to carry it out. Each day's work is planned in advance, so that there is no hesitation in following the program. Recitations are also carefully planned. The points to be emphasized and the necessary instruction are held clearly in mind so that no time is lost.

Moreover, the teacher who is a good manager is ever on the alert to detect signs of unrest among the pupils, or murmurings of dissatisfaction among the patrons of the school. Such a teacher will know when to heed such murmurings and when to ignore them.

If they are caused by some innovation, as they are most likely to be, success of the new venture will soon turn criticism to praise.

If dissatisfaction arises from some feature of the work or management in the school, it is well to remove the cause whenever this can be done, consistently with the best good of the school. "An ounce of prevention is better than a pound of cure."

Personality. The teacher should be dignified, courteous, pleasant and always herself. She should mingle freely with pupils and patrons, always be kind and sympathetic. She should at all times lead both pupils and parents to feel that she is their sincere friend. She should at the same time be positive in her directions and firm in carrying them out.

Her dress should be neat, becoming and suited to the occasion. Under all circumstances she should be a living example of what is pure, good and noble.

THE RECITATION

Purpose. The recitation is the point about which all the other activities of the school center. Someone has well said that it is a battle lost or won. The purposes of the recitation are:

1. To test the pupils.
2. To impart instruction.
3. To assign the lesson.

Testing Pupils. Each pupil should come to the recitation feeling that he is responsible for the entire lesson, and the recitation should be so conducted that he will not be able to shirk this responsibility. A few pointed questions following each other in rapid succession, and which every pupil in the class is expected to be in readiness to answer, will soon develop this feeling of responsbility.

The pupil should be given an opportunity to tell what he knows about the lesson, and the relation of teacher and pupil should be such that the most timid pupil will do this without any feeling of restraint or embarrassment. Occasionally a timid pupil may need a question or a hint to help him along, but in general the pupil should recite at first without interruption.

Imparting Instruction. After the pupils have been tested, the teacher knows where they need assistance. She should then proceed to give such explanations as may be necessary. If additional information, which the pupils cannot obtain for themselves, is needed, the teacher should give it.

Assignment of Lesson. Sometime during the recitation period the next lesson should be assigned. Whether this is done at the beginning or the close of the period is not so important as that the assignment be definite. Such assignments as "Take the next five pages," or "Solve the next ten problems," show little thought and decided lack of preparation on the part of the teacher, and are among the chief causes of poorly prepared lessons.

Proper assignment of the lesson requires on the part of the teacher:—

1. Thorough knowledge of the lesson to be assigned.
2. Ponting out the difficult passages or problems.
3. Directions for obtaining additional information when it is needed.

4. Calling attention to words whose meaning may be obscure.

Such an assignment shows the pupils definitely the work required, directs their efforts and prevents loss of time.

Methods. Three methods of conducting the recitation are generally recognized by authorities on school management. They are the question and the answer method, the topical method and the concert method. Each deserves a word of explanation.

Question and Answer Method. By this method the pupil recites by answering the questions put to him by the teacher. This method enables the teacher to make a thorough test of the pupil's knowledge, and to place the necessary emphasis on the important points in the lesson.

These advantages are clearly seen, provided the teacher is a good questioner. The questions should be:

Clear
Concise
To the point
Couched in simple language

Each pupil should be held in readiness to answer every question. This insures close attention to the work in hand.

The disadvantages of the question and answer method are that it leads the pupil to depend upon the teacher for a guide and hinders him in gaining confidence in himself; it is also a barrier to continuous, connected discourse.

Topical Method. In the topical method the pupil is given a topic upon which he writes without interruption. In the history class he may be assigned, for instance, the Battle of Gettysburg. He would be expected to give an account of the battle, making his account as complete as could be reasonably required from the lesson previously assigned.

The advantages of this method are:

It leads the pupil to study logically and to think consecutively.

It is a strong incentive to good oral expression, and is therefore a valuable means of language training.

Its disadvantages are:

The pupil is liable to place undue emphasis on the less important points in the lesson.

If the class is large only a part of the pupils may have an opportunity to recite during the period.

Pupils not reciting may become inattentive.

Concert Method. The concert method may occasionally be used with profit for drill purposes and for waking up a class, but you should not rely upon it for regular work. It strengthens the strong at the expense of the weak, and causes slow and timid pupils to shirk.

The Methods Compared. It will be readily seen from the foregoing discussion that each method has its points of advantage and disadvantage. No one should be followed to the exclusion of the others.

With classes in the first three grades the question and answer method must be given precedence. In the third grade, however, pupils should begin to recite by topic. Of course the discussion in this and the fourth grade will be very brief, but as the pupils advance the questions should gradually yield to the topic, until in the grammar grades the topical method should prevail.

At no time, however, should the value of the question method be overlooked. The most successful teacher combines all methods as the occasion requires. In most cases the topical recitation should be followed by questions to bring out points that the pupil overlooked, or to lead to clearer statements than were given.

Whatever the method employed, never lose sight of the fact that the recitation is a failure unless the entire class is interested from beginnig to end.

The teacher must be:

Animated
Enthusiastic
Interesting

She must also hold to the subject, and not be led to discuss irrelevant topics. Stick to the text.

STUDY

Importance. On page 3665 and following we have emphasized the value of knowing how to study. Here we wish to impress upon the teacher the vital importance of assisting the pupils under her charge to learn how to study. From an intellectual viewpoint she can render no greater service than this, for in so doing she will place in their hands the power to solve life's problems.

Many young people fail in the business world because when in school they never learned how to study.

The Daily Lesson. Whenever a textbook is given the pupil should be taught how to use it. In the primary grades the lessons are short and the pupils should have their atttention called especially to what the teacher wants them to study. She should also show them how to study it. In a spelling lesson of eight words four may be easy. Unless directed the pupils will spend as much time on one word as another.

Pupils of the intermediate grades should be taught how to use the textbook as a whole so as to avail themselves of all the help it affords, such as the use of keys to pronunciation, cross references, charts and pictures. They should begin their study by reading the lesson through. This will give them an idea of the lesson as a whole, and at the same time show them the difficulties to be overcome.

It is upon these difficult points that the greater portion of the study period must be spent.

The pupils should look up the meaning of every word they do not understand.

Strive to construct original illustrations of all principles and rules in the lesson.

Make such diagrams or other drawings and outlines as will help to clarify their thought.

Look up all outside information necessary to an understanding of the text.

Bring to bear upon the lesson every sense and power that can possibly assist them in getting a complete understanding of the subject in hand.

Use of Reference Works. The dictionary is the first reference book to which the pupils are introduced. How many teachers place this book in the hands of third- or fourth-grade children without a word of explanation! To these children the dictionary is a vast collection of words without arrangement or meaning. Many of them may not know the diacritical marks. More do not understand that when more than one definition is given that whose meaning is most closely related to the subject in hand should be used.

Unless the use of the words at the top of the page is explained, pupils will spend much valuable time looking for words which they should find at a glance.

When the dictionary is introduced it is time well spent to devote an occasional recitation period to explaining how to use it. Take up one feature at a time. When the pupils have mastered that, proceed to another, and continue the lessons until a reasonable facility in using the book has been acquired.

A similar course should be pursued with other reference works. School directors often complain (and not without cause) that the pupils do not use the books which they have placed in the school. They do not use them because they do not know how to use them, and for this lack of knowledge the teacher is largely at fault.

The following directions, applying especially to the use of this new ten volume REFERENCE WORK, will be of assistance to the teacher as well as the pupils:

1. Become familiar with the plan of the work. You can do this by reading the Publisher's Foreword, the Preface and the Scheme of Pronunciation in the first part of Volume I. A glance at the page containing the departments will also be helpful.

2. Study the Topical Index in the last volume of the set. This will show you how you can systematically take up the study of any department, such as Physics, Botany or Literature.

3. Look for the topic you wish to find, in its alphabetical order. The key on the back of the volumes shows you the volume to use.

4. In turning the pages watch the running heads. The title over the first column is that of the first article beginning on that page, and the title over the last column is the title of the last article on that page. To illustrate: The running heads on page 95 are *Anacreon* and *Anatomy*. If in search of the article *Anarchism* you know that it will be found between *Anacreon* and *Anatomy*. Therefore when this page is reached you stop turning the leaves and locate the article. Perhaps failure to make use of running heads is more general than any other oversight in the use of reference works, and no other device is more valuable than this for saving the reader's time.

5. Read carefully; do not attempt to memorize the words of the article, but assimilate the facts and make them your own.

Home Study. Less than one-half of the pupils who enter the primary grade complete the course of study prescribed for the common schools. The time spent in school is of the greatest value to the child, and he should use it to the best advantage.

To the pupils of the sixth, seventh and eighth grades who have learned how to study, an hour's study at home each day is not injurious. On the other hand, it is time well spent, and in case the home is supplied with suitable reference works the pupil during this hour gains information he cannot obtain at school.

TEN CAUSES OF FAILURE

Dear Teacher, are you failing in your work? If so, you can probably trace your failure to one or more of the following causes. Check yourself up by them and see where you stand:

1. Deficient in scholarship.
2. Weak in discipline.
3. Poor methods.
4. Daily preparation insufficient.
5. Lack of industry.
7. Lack of sympathy.
8. Lack of enthusiasm.
9. Unable to control temper.
10. Untidy in dress.

CONCLUSION

Interest the Key to Success. Finally within yourself, my dear teacher, are the elements of success or failure. The key to success is interest. Unless you can interest your pupils in their studies, all your efforts will be in vain. But when interest is secured, all difficulties are easily surmounted. In the foregoing pages we have given a few practical suggestions designed to assist you in planning and organizing your school; your ability to teach, however, wields a far greater influence than following these suggestions can give you, because upon your teaching power depends your ability to keep your pupils interested in their work. This power depends upon two things—knowledge and skill.

Knowledge. Your knowledge of the subjects you are required to teach should far exceed that found in the textbook. From this fund of information you should add many items of interest to the facts found in the textbook. You should also be able to direct your pupils to works of reference and other books where they can look up information for themselves. By these means, subjects before considered dry become intensely interesting. In this new ten volume REFERENCE WORK you have at your command the means which will enable you to do all this and more.

Skill. The teacher who can tell a story well is always sure of the attention and interest of her pupils. The articles in this new, complete REFERENCE WORK are so carefully written and so logically arranged that from their study any teacher can acquire skill in imparting information. We wish to emphasize this point in connection with opening exercises. If these exercises are made especially attractive, with good music and a pointed story about some subject which appeals to the pupils, there will be but few cases of tardiness and absence.

AGRICULTURE

THE men and women upon the farms stand for what is fundamentally best and most needed in our American life. Upon the development of country life rests ultimately our ability, by methods of farming requiring the highest intelligence, to feed and clothe the hungry nations; to supply the city with fresh blood, clean bodies and clear brains that can endure the terrific strain of modern life. We need the development of men in the open country who will be in the future as in the past the stay and strength of the nation in time of war and its guiding and controlling spirit in time of peace.

—*Theodore Roosevelt.*

AGRICULTURE

Early History. The story of agriculture is the story of civilization in every land and in every clime. The student who has confined his study of history to following the course of empire, of battle and of conquest and the rise and fall of kings, has missed the greatest lesson which history has to teach. Carlyle says: "Happy that people whose annals are vacant." But when the student has gone beneath the tumult and the shouting of the conquering legions to listen to the rustle of the waving grain and to the sound of the grinders, when he has followed the story of man through the centuries, and has realized that back of every conquering army, back of every mighty empire must stand the tillers of the soil, and that as these have prospered or been crushed the nation has stood or fallen, he has his hand at last upon the great heart of the problem.

The great empires of the world grew up in the fertile valleys of the Nile, the Yangtse, the Ganges and the Euphrates. And though men gathered themselves into communities, and for mutual interest, protection and companionship built great cities, they yet realized that the greatest wealth was the land—for the land meant the things of life.

We find that the first laws were land laws. When a new country was taken, the first consideration was the division of the land, and we might follow the story down through all of the centuries to our own time, when one of the greatest of our statesmen tells us: "The destiny of any people rests ultimately with the food supply. Agriculture is the *fundamental human* question."

AN AGRICULTURAL RETROSPECT

Introduction. The close of the Civil War marked the opening of the great Mississippi Valley. The soldiers who were prepared to beat their swords into plowshares found that in the four years of their service the life of the home and community had readjusted itself to their absence, and they turned their faces towards the west. St. Louis, the old French trading post, was a small city; Chicago, a good-sized town. In the first decade after the war both of them advanced into real cities.

But most of the people went into the country. The soil of Indiana and Illinois was rich beyond the greatest expectations. Kansas land was to be had for the taking, and in Missouri and Iowa soldiers' grants were equivalent to the same thing. A tide of immigration from Germany, Ireland and Scandinavia also helped to open up the land, and Minnesota and Wisconsin welcomed many Norwegians and Swedes.

The soils of New England and the Atlantic States showed the results of the long drain with little replenishment, and the opening of the factories, the development of coal and oil fields, with the growth of the iron and steel industries, changed the industries of the people in these states and made them dependent upon others for their food supply. This fact was perhaps the greatest economic influence of the period. A market was opened for the products of the farm, a market sufficiently good to warrant the purchase of the necessities and to justify the discontinuance of their manufacture on the farm. The need of bringing this market to the doors of the farm developed the most wonderful system of transportation in the world, and the market knew no bounds. Never until the opening of the great prairies of America had the world had enough food and to spare.

This rapidly growing market forced the increase in production, and out of this grew a wave of invention of farm machinery and labor-saving tools which

fairly swept the country and built up a new industry of itself—that of their manufacture.

These same conditions pushed the wave of settlement and of industry westward to the Rocky Mountains and beyond. These are the conditions which have made the last 50 years the most remarkable in the world history of agriculture.

Age of Waste. One of the early characteristics of this period was wanton extravagance. This was not in the manner of living but in the wasteful methods on the farm. The soil was rich. No attention was paid to its needs. It was easier to burn the straw and vegetable waste than it was to plow it under for fertilization, and a common sight along the Illinois, Mississippi and Missouri rivers as late as 1900 was the burning straw in the springtime.

Corn was left standing in the fields and gathered when needed for food, or put into stacks to become a harborage and storehouse for gophers, rats and rabbits. Cattle were turned into fields and they trampled as much as they ate. Fruit lay on the ground and rotted after the farmer had stored sufficient for his own needs.

The waste in animal life was as great as that of vegetable. Chickens roosted in the trees, stole their nests and brought off half broods. Turkeys roamed wild through the woods and were hardly thought of until Thanksgiving. The fowls were the "women's jobs" and unworthy of a man's attention, and the women had about all they could manage without caring for poultry.

Little attention was paid to breeding, and the live stock on the farm deteriorated. The introduction of the Holstein, Jersey and Galloway cattle in 1880 marked a change and an awakening in this connection, but at first it touched only special stock. The idea that it was just as easy to have all of the stock on the farm good or that there was anything to be gained thereby did not develop for another decade, and has not yet reached as far as it should. The loss each spring of young animals through exposure to cold rains or by injury from other animals was tremendous, but the farmer kept no books and made no balances of profit and loss. Butchering was done on the farm, and spare ribs, hams and shoulders were stored in the smokehouse; lard and sausage were made by the women folk; and the rest was wasted or given to less fortunate neighbors.

Inside the house the waste of foodstuffs was as great as outside. The farmer's wife cut a pumpkin, used what she wished and threw the rest away, for there were more in the cellar, and many had been left in the field and caught by the frost. Tables were loaded at every meal, and the farmer's wife who did not serve three or four varieties of vegetables and preserves lost in social prestige. It was said that the Chinese could have lived on what the Americans wasted during the two decades of the 80's and 90's.

Social Result of Waste. One result of this extravagance was the fostering in the country of a dependent class who were content to gather up the crumbs and lead a hand-to-mouth existence; who came to believe that the world owed them a living and that it should be handed to them without effort. These people gradually became a distinct class and are still to be found in almost every country community, where they are as much a social problem as are the improvident in cities. They play an important part in the political life of the community and must be taken into account in any analysis of social and moral conditions.

Cause of Waste. For this waste the farmers were not entirely responsible. Transportation was deficient; labor was scarce and inefficient. The drudgery of farm life, especially for the women folk, was fearful, and has become a proverb. These facts must be taken into account in the consideration of the great exodus to the cities.

Invention of Machinery. The second characteristic of this period was one to which we have called attention—the invention of farm tools and machinery. The farmer who came into the West brought with him the tools of his profession—the sickle, scythe, rake, plow, fork, harrow, hoe and the corn knife, with an old-fashioned grindstone to keep all of them in order.

It has been said that if Cyrus McCormick, the Virginia farmer and blacksmith, had invented a cotton picker instead of a reaper, and so enabled the women of the South to keep the Southern army in the field, the issue of the Civil War might have been changed. Following close upon the reaper came the binder, the disker, the many varieties of plows and the planter. All of these and as many more lessened the labor of the farm and increased the rate of production. The high windmill in the barn lot took the place of the back-breaking pump or pulley well.

Indoor Methods. But this introduction of machinery touched only the outdoor life of the farm. The women still stood over hot stoves and cooked, often two or three preparing meals for 20 men, and these meals had to be most bountiful. They did the milking and strained the milk into pans to be skimmed the next morning and churned with a back-breaking dasher. Here was another fearful waste, but they supplied their household needs and all the butter that the grocer in the nearest small town could handle. The butter and egg money belonged to the women folk, and that was usually the extent of their financial interest on the farm, and hard indeed did they work for it. The woman was one of the necessities on the farm; in too many instances she was nothing more than that!

Early Improvements. The invention of the sewing machine marks the beginning of woman's emancipation. But for a long time invention in her behalf stopped there. It was nearly 40 years after the invention of the reaper and the introduction of machinery on the farm before there was any perceptible difference in the household labor. The introduction of ingrain carpets, experiments in churns, washing machines and wringers in the last of the 80's and of gasoline stoves in the early 90's made great difference in the labor. But the farmer was slow to adopt even then, and the purchase of machinery to save woman's work usually began only after every possible outside tool had been purchased. In 1900 most of the farmhouses were 20 years behind the barns.

Recent Improvements. The last decade has seen a great change. Cement walks around the home prevent the tramping in of dirt. Cream separators and machine churns decrease the labor of handling milk, while in many localities the creamery wagons call at the farmhouse and take all of the milk to the factories or to the milk stations for the city supply. This has become one of the problems of our modern civilization —the supplying of pure milk to the cities.

Dairying a Separate Industry. Milk, butter and cheese are to be counted as among the necessities of life. Especially is this true of milk, for, as a result of the high nervous tension at which city women live, a large per cent of infants depend upon cow's milk as their sole food.

Poultry. Incubators and properly constructed chicken houses, together with the demands from the city, have made poultry raising one of the most profitable of farm industries. Whole farms are given to it, and fabulous prices are paid for fancy stock. See the article *Fowl, Domestic,* on page 1076, vol. 3 of this REFERENCE WORK.

Power, Light and Heat. With the acquisition of more wealth the farmers have been able to build comfortable homes, and equip them with modern conveniences. The windmill pump has been made to supply water for the house, as well as for the barns; running water and sewerage pipes are now common in modern farmhouses, and many contain bath-

rooms. These homes are also supplied with labor-saving devices as important to the women of the household as are the farm machines to the farmer himself. Among these are the cream separator, the washing machine, gasoline stove and convenient modern cooking utensils, all designed to save labor, and to contribute to the comfort of the home.

Moreover, power for operating the churn and the laundry machinery is often supplied from the gasoline engine used by the farmer for grinding feed, pumping water and for other purposes, or, occasionally, where water power is convenient, an electric plant supplies power for these purposes, and also provides light for the house and barns.

In nearly all modern dwellings baseburners or furnaces have replaced the old-style heating stove, saving labor and adding to the comfort of the family.

Farm Buildings. Within the memory of our own time the modern farm buildings have grown up. The cabins belong to our grandfathers, but our fathers have seen a great change. Like the other improvements, this change began out of doors. Expensive machinery must be housed, and sheds sprang up. Increased production required that larger storehouses must be built, and the blooded stock was found to thrive better when sheltered. Moreover, there was now time and money for substantial buildings, which the farmer realized would pay.

Cement. The introduction of cement alone has revolutionized the farm; walks, runways, fences, and floors of cement have saved time and labor as well as money. Cement floors in barns have conserved the fertilizing products of the farm, and this alone paid for their construction. Properly constructed cellars, dairy and ice houses have replaced the old dugout and pit, and even the chickens have shared in the advantage of this new invention. See the articles *Cements* and *Concrete* on pages 533 and 676 of vol. 2 of this REFERENCE WORK.

Silos. The cheapness of cement construction has furthered the construction of silos, these being far more efficacious when air-tight, and this is only possible without prohibitive expense for the ordinary farmer except when built of cement. See the article *Ensilage* on page 962 in vol. 2 of this REFERENCE WORK.

Better Homes. Improvements without eventually demanded the erection of better homes, and, once turning to this question, the farmer did not leave it half done, nor allow his cousin in the city to excel him. From the Ohio River west to the coast we find farmhouses of excellent construction, modern in their equipment, making as comfortable homes as can be imagined. But, unfortunately, this form of farm improvement has not reached as far as it might, being, as we have noted, the last in order. Its continuance is one of the better things promised for the 20th century.

Sanitation. Reading, observation and contact with the larger social life developed through the extending of this market, have led the farmer to look more carefully after the sanitary conditions of his premises. Barns and stables are no longer in close proximity to the house, systems of drainage convey waste water to a safe distance, and outbuildings are properly constructed and scrupulously cared for.

Closely covered pits for holding manure are important agencies in preventing the multiplication of flies, and screens at doors and windows protect the house from the invasions of these pests. The old surface well, with its contaminated water, has in most instances given way to the deep well, with pure water. This is one of the most important steps in the sanitation of farmhouses, for surface water is one of the most prolific sources of typhoid fever, diphtheria and other germ diseases.

UNITED STATES DEPARTMENT OF AGRICULTURE

Origin. The United States Department of Agriculture had its origin in the

far-seeing wisdom of Washington. Himself a large holder of land, he realized the importance of the aid to the greatest of American industries, and urged that a special branch of the government be appointed to care for the interests of agriculture. In May, 1862, the bureau of agriculture was established as a branch of the Federal Department of the Interior. This was brought about largely through the influence of the United States Agricultural Society, which had been organized in 1852 and held annual meetings at Washington.

The first commissioner of agriculture was the Honorable Isaac Newton, who began active work to make his bureau efficient. It was Newton who first called attention to the possibilities of the sugar beet. The United States Fish Commission was appointed as a result of recommendations made through the bureau of agriculture, which also took up the extensive study of plant and animal disease.

Under Norman J. Colman, of Missouri, the bureau was greatly enlarged, and became, under his administration, a separate department coordinate with the other executive departments of the government. The secretary of agriculture became a member of the cabinet. Colman was made first secretary of agriculture. Under Secretary Rusk, appointed in 1889, was started the Farm Bulletins, the value of which, in the dissemination of information, can not be overestimated.

By a special act of Congress, known as the Hatch Act, experimental stations were established in 1887. Much work had already been done along this line by the department, and with a special appropriation they were able to make these stations of greatest value. The country was divided into sections, according to climatic and soil conditions, and the stations, as far as was possible, were made to cover these divisions, that the results of the experiments might be according to the conditions under which the people were to try them out. These stations are under the supervision of expert scientists and practical farmers. Those living in the sections in which they are located may send in to them soil for analysis, and receive advice as to the needs of fertilization or the crops for which it is best adapted.

A part of the experimental work done by the Federal Department of Agriculture which has been but little known or appreciated has been the investigations which have been made in other countries by specialists sent abroad. They have studied the conditions by which plants or species not indigenous to, or successful in, this country were cultivated, and determined how those conditions which had led to their successful growth could be reproduced in this country. These emissaries of peace have been among the greatest benefactors to the nation. The introduction of the sugar beet is a remarkable and well-known instance of this. The first efforts to grow this plant in this country were unsuccessful, and a specialist was sent to France and remained there several years to study conditions of its growth. A remarkable instance of work in this direction is in the journey of Frank N. Meyer, who spent three years, from 1903 to 1906, journeying through China, going to places heretofore unknown. He sent home about 1200 specimens, and if only 100 of these grow, the value to the country of this expedition will be estimated in millions of dollars.

As a matter of fact, we would be without many of our best-known fruits and vegetables, except for importations. Some of them are chance selections, but many have been the direct results of careful experiment and investigation. The reclaiming of waste lands in South Carolina, through the introduction of the matting rush plant, is another instance of this effort. This will, if successful, not only give thousands of acres to the productive area, but will meet a demand in this country for which millions are annually expended.

Men are traveling all over the world, searching in the most inaccessible places, to find the things which shall make for new industry and for new national life. Plants are sent to be tested as to whether

they will add to the fertility of the soil, restore desolate and waste places, or give to man a new food or drink.

Another of the great works of the United States Department of Agriculture has been the search for the insects and enemies of plant life. The balance of nature is perfect, and always where there is a pest or a destroyer there is its special enemy by which that on which it preys is kept from extermination. Extermination seems to be one of the things against which nature struggles, and is only possible when the balance of power has been disturbed. One of the most remarkable instances of this was the search made for the insect which should destroy the different species of scale to which the orange and apple orchards of California became subject. A ladybird was found in Australia which was the special enemy of the scale that threatened to destroy the apple orchards of California, and George Compere, who had traveled all over the world in search of nature's balance-restoring agents, found on a tree in China the enemy of the scale, on the orange tree.

It is remarkable that the San José scale, which became such a pest in California and in Florida, was introduced by a mistake made in an effort to find the enemy of the white scale, but a native insect found the San José scale a special article of diet, and so balance was restored. (See page 2547 in Vol 6 of this REFERENCE WORK.

As a realization of the dangers of importations which may prove enemies of plant life, strictest horticultural laws have been passed to prevent the bringing of plants or of animals which have not passed the inspection of the authorities, and been pronounced harmless. The importation of the Russian thistle a few years ago into the Northwest caused the loss of 3,000,000 bushels of wheat in one year, and an expert was sent by the department into that region to find what could be done to counteract its ravages. It was found that cutting the thistle in August of each year, before its seeds had matured, stopped its propagation; means were taken to hinder its future importation, and so the danger was reduced to a minimum.

One of the most valuable features of the work of the department has been the individual aid that is given by correspondence all over the country. If a farmer in New Mexico finds unsatisfactory conditions with which he cannot cope, a letter to the department will bring him detailed information as to the best means to handle the difficulty, or specialists will be sent to investigate the conditions. An instance of this recently is that of a man in Michigan on whose summer-home farm the shade trees were dying for some reason for which he could not account. A letter to Washington brought to him a series of inquiries as to conditions of soil, the general lay of the land and directions for making inspection of insect life which might be the cause of the destruction. On receiving answer to these inquiries, the department, with the knowledge which they already had of climatic conditions in that section, were able to instruct the man just how to go to work to doctor his trees, and before the summer was over they were putting on new life.

Bulletins of information on every subject of value and interest to the farmer in whatever section he may be are issued monthly by the department and are sent out free to any one who will request that his name be put on this mailing list. These bulletins contain compiled results of experiments in all the different stations and agricultural schools, and form the basis of a most valuable history of agriculture in the making.

State boards of agriculture have been organized in every state in the Union. Many of these state boards date back to a time before the organization of the United States Department of Agriculture. The organization of these state boards grew indirectly out of the Farmers' Institute movement. In New Hampshire the board of agriculture was organized in 1820 and was given state aid, though it does not seem to have been formally recognized by the Legislature

until 1850. Ohio appointed a state board of agriculture in 1846, and that of Massachusetts dates from 1852. These boards follow much the same lines of work and experiment as that of the national board, their experiments dealing more closely with local conditions and more in detail with the needs of the state than is possible by the national board. They always work through and with the agricultural college of the state in experiment stations.

Each state also has its experimental farms, usually connected with the state university or college of agriculture. Here experiments are made and poultry and live stock are raised. The State of Missouri is said to have expended $10,000 in the raising of a hen, and other states have their special breeds of different animals, by which they set an example to the people of what can be done by care and cultivation.

AGRICULTURAL EDUCATION

The Beginning. One of the great factors in agricultural advancement in the last 50 years has been agricultural education.

The need for education along this line was not felt so keenly in America as in Europe. Land holdings were large, and when one field was exhausted it could be turned into pasture or given up to the primeval forests. It is true that the fertile soil of Pennsylvania and of some of the states of New England were greatly depreciated in value by the system of farming used in the first two centuries in the United States. Commercial interests took the place of the agricultural industry and the farm moved westward. The fact that the great open West could be had for the taking prevented these bad agricultural methods from being an economic disaster. The center of the great wheat industry was first in Rochester, N. Y. By 1840 it had moved westward into Ohio and, later, Illinois, and then Kansas took precedence. It was the realization of this mistake in the East, together with the effect of agricultural education in England, at this time strongly emphasized, that led to the beginning of agricultural education on a large scale in the United States. Indeed, the beginning had already been made in the Farmers' Institute movement.

Farmers' Institute Work. The Farmers' Institute work had its origin in a meeting called in 1785 in Pennsylvania, when an agricultural society known as the Philadelphia Society for the Promotion of Agriculture was formed. In Massachusetts, in 1792, was formed a society for promoting agriculture. This society began an educational campaign by means of lectures, working for a better stock and better crops. Farmers' Institutes have been organized in practically every state in the Union, and in many cases the organization of the state department of agriculture has been merely official indorsement of this movement. See FARMERS' INSTITUTES, on page 1004 in Vol. 3 of this REFERENCE WORK.

The Grange. Another important factor in agricultural education and closely allied to the Farmers' Institute movement has been the Grange, which had its first origin in 1849. It was based on the fundamental ideas, first, that the farmer must be better educated for his business; and, second, that politics could not solve the problems of the people.

During the decade following 1880 this movement swept the country with results of vast importance in rural and in political life. After that time there was a slight decadence in the movement, owing in part to the cooperative principle that was introduced in the way of commercial institutes, but the last 15 years has seen a revival of this movement, and it is today playing an important part in the solution of the rural life problem. The Grange is a live organization based upon the principles of conservation and education, and cannot be ignored as a factor in the promotion of the intellectual, social and ethical sides of national life.

Agricultural Colleges. Agricultural colleges have been in existence for about 50 years. In the beginning they were discouraged. They had to train their own teachers as well as to create a confidence in the need of their work. They are now established and maintained as part of state institutes, offering a four years' course as complete as can be given in that time.

College Courses in Agriculture. This course consists of the best business and scientific training, and the graduate goes out prepared to meet the problems that may arise in the following of his profession. These colleges also offer shorter courses of two years, and in addition to this, nearly all give special winter courses of from ten days to fourteen weeks. Longer courses are being taken up by thousands of regular students entering the state universities each year, and the shorter winter courses are often attended by practical farmers, who spend the winter months fitting themselves more completely for the next year's work; in fact, agricultural colleges cannot meet the need which is being felt by the farmers everywhere.

High School Courses in Agriculture. High schools are giving high-grade courses in English and mathematics with about half time devoted to scientific agriculture. In addition to all these, we are just beginning to get our hands on the key of the whole situation—teaching of agriculture in the rural schools, bidding the boy and the girl on the farm to a realization of the fact that the old arduous chores can be made of fascinating interest as actual scientific experiments. This education in the rural schools will tend to hold the boy and the girl on the land instead of making them join the vast army of the untrained in the city.

Technical and Vocational Education. Technical and vocational education has received a great deal of attention in the United States in the last 25 years, and the establishment of the agricultural schools and colleges has been one of the most important phases of this educational movement. There are 50 agricultural collegiate institutions receiving Federal aid, 40 agricultural state colleges and 125 normal schools. In addition to this there are many endowed private institutions. In addition to these, over 20 special institutions for the teaching of agriculture to negroes and Indians have been organized, 15 of which receive Federal aid.

Corn Contests. Another important feature of agricultural education has been the corn-growing contests—the offering of prizes to the country boys and girls for the best results which they shall gain from personal work. Usually one acre is the amount of land stipulated. One of the first conditions of the contest is that the boy or girl shall do all the work, from fertilizing and plowing the land to the harvesting of the finished crop. They are also required to keep record of their work, the kind and quantity of seeds planted, number of hours' work per acre, weather conditions and all of the things which shall be of value in future experiments. These corn contests have appealed to the country people as a practical step in the direction of education, as perhaps no feature of the educational movement has done, and the greatest interest is manifested in their results wherever they are introduced.

Boys and Girls Corn Clubs. The objects of the Boys and Girls Clubs may be summed up as follows:

1. To teach the principles of agriculture and horticulture in a definite and practical manner.
2. To teach love of the soil and plant life and show communities the value of their lands.
3. To dignify labor and make it intelligent and effective.
4. To give purpose and direction to youthful lives at the opportune time.
5. To impress the value of individual ownership and earning.

6. To help the family by having all of its members contribute to its support.
7. To show the value of healthful rivalry and cooperation in producing and marketing crops.
8. To train farm managers and homemakers.
9. To vitalize school work.
10. To develop manhood and womanhood.

Corn Club Results. One instance of practical good done by the Corn Club may be given. A boy on a farm in Georgia dropped out of school because he was too old to go with children. He was 16. The county superintendent was interested in the Corn Club movement and was anxious to enlist William, but he did not come out to the meeting. The superintendent went to his home. The boy said that he did not expect to become a farmer. In reply to the superintendent's question as to what he intended to do, he pulled out an advertisement cut from a city paper, which read, "Automobile College. Expert chauffeurs in three weeks." Here was a boy leaving a good home on one of the finest farms in the state to become a lackey in a city because the farm and the country schools had failed!

The superintendent was stirred to a realization of all that was at stake, and the boy was at last persuaded to remain at home and enter the contest. His parents were appealed to, and an acre of land was given to him. He gained one of the prizes that fall, and was so elated by his success that he bargained with his father for a larger holding the next year. He entered into the work with interest and enthusiasm, and is today on a farm of his own, almost paid for, and is known as one of the most progressive farmers of his community.

There is a lesson in this story for parent and teacher as well.

Farm Journals. The various farm journals published all over the country have contributed largely to rural education and the establishing of higher standards of living, and one or two of the current first-class periodicals are to be found in almost every country home. See AGRICULTURAL JOURNALS, on page 37 in Volume 1 of this REFERENCE WORK.

Traveling Libraries. One of the most important factors in rural education has been the traveling libraries, which are sent out from nearly all of the state libraries. These traveling libraries are made up from carefully selected lists, and are sent out on a route, going from one town to another. They are consigned to someone in the community who agrees to see that they are distributed according to the rules of the state library, and that they are returned to that library, or forwarded to the next point of travel.

These libraries can be secured through correspondence with the state librarian; a letter addressed State Librarian, Division of Traveling Libraries, at the state capitol, will bring the necessary information that any one in the community who will conform to the requirements may be the means of giving this advantage to the community.

Reading clubs will find these traveling libraries of greatest help. If a special course of reading is selected, it is possible to secure books which shall be specially selected for that course.

A rural school teacher who finds that there is no library in the school should place herself in correspondence with the state library at once. Regulations in regard to these libraries differ in the different states, but the special laws governing them can easily be ascertained.

RURAL LIFE PROBLEMS

Isolation. The great problem of the life of the farmer has been the same through all ages—isolation. The man who tills the land must live on the land, and this fact has shut him off from his fellows, narrowed his life and interest, and so has set him apart as a class unto himself. Add to this fact the burdensome European and English land and tenant laws, and we have the explana-

tion of the proverbial lack of advancement and of progress which for centuries was a part of the life of the farmer.

Another factor in the problem was the nature of the work itself. Previous to the days of the invention of machinery the man who really did the work, the laborer, be he owner or hired man, could find little but drudgery and monotonous weariness in his work. Long hours of back-breaking labor left little time of inclination for the finer things of life, and sometimes the weight of it all was too heavy for the heart and spirit of the man.

Social Conditions. The different social conditions in America, as well as the opportunity open to every man to own the land which he worked, brought a different type of man to the soil. This man brought with him high ideals and purposes, and his family life was recompense for the hardship. The invention of farm machinery lightened the burden of labor, and the whole rural problem changed.

The real farm problem consists in maintaining upon our farms a class of people who have succeeded in procuring for themselves the highest possible class status, not only in the industrial, but in the political and social order, a status that shall measure up fairly with the demands of American ideals.

The last decade has seen a wonderful movement in America, on the part of the farmers themselves, to solve this problem. Two great factors have entered into the movement. The rural population has become a fixed population. The "three great shifts" have passed. The business of the farmer is not now to till the virgin soil, from which he can go on westward when it is exhausted. There is no longer the great open West where land can be had for the taking or for a nominal sum. The frontier has retreated into the ocean, and the problem of the American is not how to subdue an unbroken wilderness, but how to make the most of the land which is his, and give the utmost of good to those who are to come after him. With this established condition of his life has come the greater leisure to realize its isolation.

The American farmer is not a peasant to whom leisure means stolid indifference or gross self-indulgence. His brothers are in banks, law offices and college chairs, and his heart and his mind are made of the same stuff as theirs. His interests and his aspirations for himself and his children vary neither in kind nor in degree. Always the child must be sent into the town to be educated, and life has been a continual struggle to work away from those things of contact with the soil which seem to make it degrading.

Exodus to the City. The second factor in this awakening has been the tremendous exodus of the young people from the farm into the cities. This movement during the last 25 years has been one of the characteristic traits of the American life, and its disastrous results are today being felt in both city and country. The reasons for this lay in the very conditions of rural life and the limitations against which the spirit of youth constantly struggles. Opportunity seemed to beckon to the crowded city streets, and young men and young women gave up the glad free life of God's great out-of-doors to be swallowed up and lost in the tumult of the city.

The loss to rural life through this movement cannot be overestimated; this, in spite of the fact that the cities have gained some of the greatest of their financiers and business men, and the nation some of her greatest leaders as a result. Many of these are today turning their steps back to the country, and are giving the best of their thought to the solution of the rural life problems.

Country Life Commission. In February, 1900, President Roosevelt gave to Congress the report of the commission on country life. This commission

had been appointed to make a thorough investigation of rural conditions in all sections of the country, and to present a report that would aid in an intelligent effort to bring about better things. A series of questions was sent broadcast to every state in the Union, inquiring as to conditions of housing, schools, labor, wages, banks, transportation rates, sanitation, social and moral welfare. The answers to these questions proved that the rural population had among its people not only educated, cultured gentlemen, but statesmen and philosophers as well, that they themselves were working to solve the problem and were glad to cooperate with the movement.

The awakening among the country people caused by these investigations and the report of the commission to Congress mark an epoch in country life, and the beginning of better things. The old farmer who pushed back the frontier is gone, and the new farmer, with the realization that the best which life has to offer may be his for the taking, has come to take his place.

Agricultural Education. The widespread movement in agricultural education has played a great part in these results. A philosopher of the last generation said: "By and by it will be generally realized that few men live or have lived who could not find scope for all their intellect on a 200-acre farm." These words are fulfilled, and the educated farmer finds scope not only for all the powers of his intellect, but real pleasure and satisfaction in making two blades of grass, nay four, grow where but one grew. He knows that the "soil is not inert and dead, but it is peopled by living organisms which may become his servants to do his will—that every man who owns a farm may become a master and monarch exercising dominion over the living and not the dead."

Good Roads. Another factor of vast importance in the rural life problem has been the nation-wide movement for good roads. Among the things that contributed to this movement and brought it home as a great need to the country people themselves was the invention of the thrashing machine, which went from farm to farm during the harvest season and often had to be taken miles out of the way; much time was lost because of country roads, into which a wagon in the springtime would sink to the hubs, and which often in summer was almost impassable because of lack of care.

The invention of the bicycle and, later, of the automobile, and its extensive adoption by wealthy farmers, as well as extensive use by city folk in going from place to place, have given another impetus to this movement. The rural free delivery has necessitated making roads passable in all conditions of weather. Great highways from one state to another are being opened, for which the state pays and cares. In addition to opening up the country itself, these have brought the people in closer touch with each other and with the cities towards which their interests drift; the rural free delivery, by which the stores of these great cities are brought to the very doors, and the telephones have helped much to solve the problem of isolation and its consequent narrowness of life, which was a cause of discontent.

Schools. One of the greatest factors attributed to the exodus of the farmers into the city has been the lack of educational advantages which country life has to offer. Agricultural education is a phase of technical training, but the rural school problem is a feature of the general school question of the country. Rural school children are not different from their cousins of the city, and they are entitled to the same careful training, the same advantages and the same opportunities.

Owing to country isolation, which, after all, is the great problem of rural life, it has been almost impossible to give these advantages to the children of the rural school districts. Bad roads and few social advantages offered little inducement to good teachers to go into

the country, and so the rural schools were almost forgotten in the wave of educational advancement which has worked such wonders in city schools in the last 25 years.

The conservative disposition of the country people, which is a natural product of isolation, has long retarded the payment of salaries sufficiently large to induce good teachers to go into the country, and has hindered improvements in grounds and buildings.

Forward Movement. However, the last decade has seen a great forward movement in this direction, and when all of the things hoped for by those who are now studying this problem are attained, the country school may be even a better school than that of the city. The country child will still have the life in the open, will still keep in his heart that knowledge and love for growing things which throbs anew each year with the springtime resurrection of bud and leaf, which glows with the bounteous harvest of the summer, which touches with a strange thrill in the white days of winter, and fills him with high aspirations and lofty ideals. This it is that, in spite of the rough benches, the unlovely buildings, the bare grounds and lonesome roadways, has yet enabled the country schools to give to the nation some of the greatest of her soldiers, statesmen and scholars.

The United States Department of Agriculture has been one of the leaders in this forward movement, and the National Bureau of Education has given valuable data in regard to present conditions, and more valuable suggestions and definite outlines for improvement. Model schoolhouses in miniature are being furnished by this department, and directors are urged to send for them, when planning new buildings. We would suggest that parents and teachers interested in having a share in this movement for better country schools write to the department. State what is the especial problem in your locality, and you will receive definite help towards the solution of that problem.

Model rural schools are now conducted by state normals, and the very general demand for better teachers which the normal training is making every effort to meet is playing an important part in the movement. Almost every state is joining in the movement towards consolidation of rural schools. On the question of the value of this movement much has been said, but there seems to be no doubt that the consolidated district school, with a central high school, is the practical solution of the rural school problem. This is not yet possible in all states because of existing state laws, but laws can and will be changed, and the value of consolidation is no longer speculative.

The ideal before the educators who are studying this problem is education for the farm, that the child, instead of leaving home for the small town or the city to obtain his education, shall fit himself for college, if he will, in the country school, and that the instruction there received shall tend to give to him an appreciation of the things of the country life which shall draw him like a magnet back to the farm when the college days are ended. The farmer of the future will be educated. He will realize that his work is well worth the best of his thought and effort, and that its returns in opportunity and richness and life are second to none.

FERTILIZERS

FERTILIZER DEFINED

A fertilizer is any substance placed in the soil to increase its productiveness. In other words, fertilizers are substances used to increase the amount of available plant food in the soil. This may be accomplished in three ways:

By adding plant food to the soil direct.

By improving the physical condition of the soil.

By breaking up chemical compounds in the soil and setting the plant food free.

PLANT FOOD

By plant food we mean those substances which the plant assimilates during its period of growth. In farm crops this period extends from the time of planting until the harvest.

The principal substances which constitute plant food are:

Nitrogen	Lime
Phosphorus	Magnesium
Potash	Carbon

Besides these there are a number of other minerals in small proportions.

The carbon is obtained from the atmosphere and is absorbed through the leaves in the form of carbonic acid gas. In the leaf, under the action of sunlight, this gas is decomposed and the carbon is retained by the plant, while the oxygen is set free and returns to the air. Possibly some nitrogen is also obtained from the air.

However, most of the nitrogen and all of the other substances except the carbon must be obtained from the soil, and fertilizers must contain these substances, or they must contain substances which will react on certain compounds in the soil and set free the plant food which these compounds contain.

THE SOIL

The soil usually contains a sufficient supply of the four substances required in largest quantities, but only a small proportion is available; hence the amount of plant food which a soil contains when considered alone forms no criterion from which to judge the soil's fertility.

The vital question is, How much plant food can be made available each year? Those methods which come nearest to a complete solution of this problem are the most successful.

Soy Bean Root Tubercles

The tubercle is only the home of the bacteria, which are so small that they can be seen only by a powerful microscope. The tubercles are a sure sign of the presence of bacteria.

For a study of the structure of soil the reader is referred to the article *Soil*, page 2682, of this work. The purpose of the following pages is to discuss the soil in its relation to fertilization. Organic matter, usually known as humus, is one

of the most important constituents of soil. It comprises decaying animal and vegetable matter, in which are found millions of living organisms, or bacteria.

In dealing with soil the farmer is not dealing with inert dead matter, but with an active living thing.

"The soil is alive and so should the farmer be."

NITROGEN AND BACTERIA

Bacteria are so small that they must be magnified several hundred times in order to be seen. Thousands of them can be contained in a single drop of water. There are many species, but all are divided into two great classes: those which feed upon dead decaying matter, and those which feed upon living matter.

Action of Soil Bacteria

Plants cannot assimilate their food directly, and it must be prepared for them by chemical and physical changes. The rootlets of the plant cannot absorb inorganic matter directly, as they come in contact with it in the soil. The substances containing this matter must undergo decomposition and transformation. The forces which effect these changes are plant secretions, "vital activity" and soil bacteria.

"The matter of prime importance, and therefore of the highest interest, is the established fact that the prime factor in soil fertilization is the presence and activity of soil bacteria."—*Collins.*

The chief functions of these bacteria are nitrification and nitrogen-gathering. By nitrification is meant the formation of nitrates. Nitrogen is a gas and constitutes about four-fifths of the atmosphere. It also occurs in combination in plants and animals. But plants cannot use nitrogen in any of these forms. It is the function of these bacteria to transfer the nitrogen from insoluble organic compounds to soluble compounds which are available plant food. These compounds are calcium nitrate, potassium nitrate, magnesium nitrate or sodium nitrate, depending upon the substance uniting with the nitrogen. If the prevailing alkali is potash, for instance, potassium nitrate will be formed; if the prevailing alkali is lime, calcium nitrate will be formed. Ground limestone applied to soil deficient in lime furnishes available alkali material for the formation of nitrates.

COWPEA ROOT TUBERCLES

The tubercles are about the size of an ordinary garden pea; each tubercle may contain millions of bacteria.

Gathering Nitrogen

We have already stated that nitrogen in the soil is found almost entirely in organic matter. The destruction or decomposition of this matter tends to reduce the total stock of nitrogen in the

soil. A portion is removed in crops; large quantities are removed by drainage; and some is lost in other ways. The problem of restoring the nitrogen to the soil is, therefore, one of great importance. This can be done in the following ways:

By returning to the soil through barn manure a portion of the nitrogen removed in the crops.

By the use of commercial fertilizers.

By gathering nitrogen from the air.

Nitrogen-Gathering Bacteria

The atmosphere is the most prolific source of nitrogen. Reckoning the weight of the atmosphere at 15 pounds per square inch on the earth's surface, there are about 75,000,000 pounds of atmospheric nitrogen resting upon every acre of land. The supply is inexhaustible. It is necessary to find some means of drawing from this supply economically, the amount necessary to restore to the soil what is lost each year through the various agencies of removal. This is accomplished through nitrogen-gathering bacteria that live in the roots of certain pod-bearing or leguminous plants, such as clover, alfalfa, soy beans, cowpeas and vetch.

None of these plants in itself has the power to take nitrogen directly from the air, but these nimble organisms which live in tubercles on the roots possess the power to take free nitrogen from the air and cause it to unite with other substances and form compounds suitable for plant food.

The tubercles are easily seen. The first picture shows how they appear on the roots of the soy bean, and the second shows them on the roots of the cowpea. By using these plants as "cover" or "catch," nitrogen is restored to the soil, from the most natural and most economic source. The method is described under *Green Manures,* page 4158.

Clover Bacteria

An interesting experiment which anyone can perform if the constituents of the soil are known, shows the effect of clover bacteria in soils having no nitrogen.

Effect of Bacteria on Clover

This illustration shows the value of inoculating the soil with bacteria. Suppose the soil treated covered several acres, and one can easily see that the farmer would gain several tons of clover to the acre by inoculation.

Fill two pots or boxes with soil exactly alike and containing no nitrogen. Plant red clover seed in both. Inoculate the soil in one pot with bacteria, but leave that in the other pot as it is.

To inoculate the soil with bacteria, take a pound of soil from a clover field where there is an abundance of tubercles. Place this soil in a jar. Add a quart of pure water and shake thoroughly. Allow the soil to settle, then take a small quantity of the clear solution and add it to the soil you wish to inoculate. The

picture shows the result of such an experiment. The soil in the pot at the left had no bacteria, and that in the pot at the right was inoculated.

CLASSIFICATION

Fertilizers are classified as natural and artificial, the latter more commonly known as commercial.

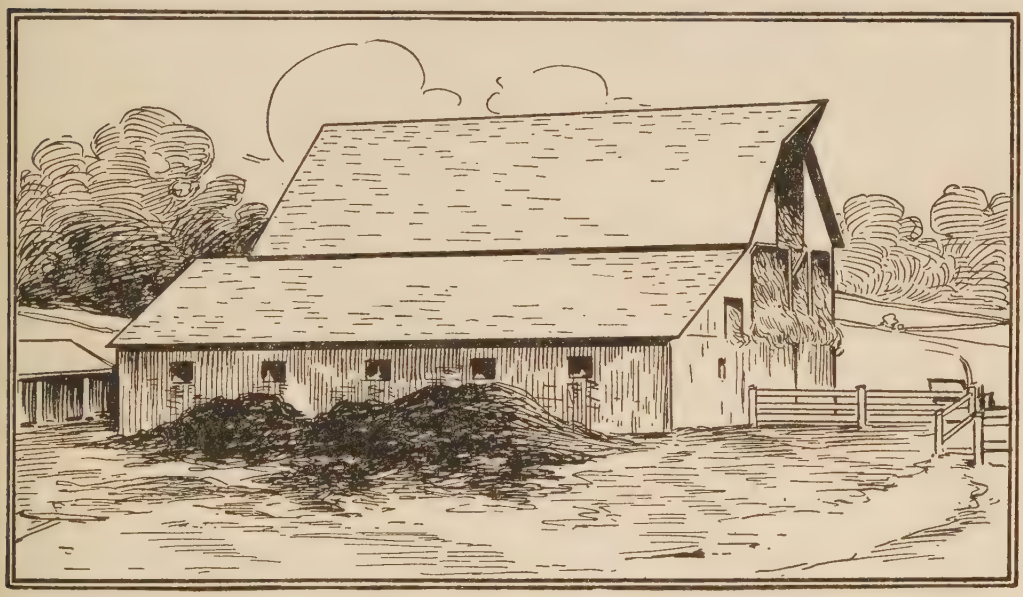
The natural fertilizers include:

Barn Manure	Marl
Peat or Muck	Gypsum
Green Manures	Phosphate Rock
	Kainit

The fertilizing value of the manure produced by the different classes of farm animals of the United States is estimated to be for horses, mules, etc., $526,500,000; cattle, $1,220,000,000; hogs, $376,000,000; and sheep, $103,200,000, or a total of $2,225,700,000.

Professor Roberts of Cornell estimates that the manure produced during seven winter months on a farm carrying 4 horses, 20 cows, 50 sheep and 10 hogs, has a value of at least $250.

Professor Roberts also assumes that one-third of the value of manure is lost annually by present methods of management. This means a loss to each farm amounting to $83.33, and an annual loss to all the farmers of the country amounting to $708,456,000. Much of this loss can be avoided by more careful management. The saving of this waste and converting it into the proper channels of production is one of the great problems connected with rehabilitating worn-out farms.



An Old-Style Barn

This illustration shows a still too common method of throwing manure out under the eaves, where it catches all the water from the roof and has its most valuable fertilizing constituents washed away.

Commercial fertilizers include all manufactured fertilizers. The best known are:

Phosphates
Guano
Tankage

BARN MANURE

Barn manure is the most widely distributed and extensively used fertilizer. Its use probably exceeds that of all others combined.

The following table prepared by the New York State Experiment Station is valuable for reference:

The amount of fertilizing substances, nitrogen, phosphoric acid and alkalis, potash and soda.

Amount and value of manure produced per 1000 pounds of live weight of different animals

	Amount Per Day	Value Per Day. *a*	Value Per Year. *a*
	Pounds	*Cents*	
Sheep	34.1	7.2	$26.09
Calves	67.8	6.7	24.45
Hogs	56.2	10.4	37.96
Cows	74.1	8.0	29.27
Horses	48.8	7.6	27.74

a Valuing nitrogen at 15 cents, phosphoric acid at 6 cents, and potash at 4½ cents per pound.

Fertilizing Value

Manures of different animals vary in their fertilizing value. Careful experiments show that "as regards the amount and value of manure produced for an equal amount of live weight, hogs stand first, cows second, horses third and sheep fourth.

"As regards value per ton of normal manure (excluding that of hens) sheep and hogs stand first, horses second and cows third."

The extent to which these substances are available.

The relative proportions of these substances in solid and liquid manure are shown in the last table on the page.

Care of Manure

The quality of manure depends to a large extent upon the care bestowed upon this most valuable fertilizer. The chief purposes of this care should be to prevent loss from leaching and to secure that

Analyses and value per ton of manure of different animals.

	Water	Nitrogen	Phosphoric Acid	Potash	Value Per Ton
	Per Cent	*Per Cent*	*Per Cent*	*Per Cent*	
Sheep	59.52	0.768	0.391	0.591	$3.30
Calves	77.73	.497	.172	.532	2.18
Hogs	74.13	.840	.390	.320	3.29
Cows	75.25	.426	.290	.440	2.02
Horses	48.69	.490	.260	.480	2.21
Hens	56.00	0.80 to 2	0.50 to 2	0.80 to .90	7.07

Again, the liquid parts are much more valuable than the solid, a fact often lost sight of by the farmer, who allows much

physical condition that will make the fertilizing substances the most readily available for the growing crop.

	Water		Nitrogen		Phosphoric Acid		Alkalis (potash and soda)	
	Solid	Liquid	Solid	Liquid	Solid	Liquid	Solid	Liquid
	Per Cent	*Per Cent*	*Per Cent*	*Per Cent*	*Per Cent*	*Per Cent*	*Per Cent*	*Per Cent*
Horses	76	89.0	0.50	1.20	0.35	Trace	0.30	1.5
Cows	84	92.0	.30	.80	.25	Trace	.10	1.4
Swine	80	97.5	.60	.30	.45	0.125	.50	.2
Sheep	58	86.5	.75	1.40	.60	.050	.30	2.0

of his liquid manure to go to waste.

This fertilizing value depends upon two conditions:

Application

Experiments show that the most satisfactory results are secured when manure,

both liquid and solid, is applied to the soil in the freshest possible condition. Well-rotted manure is less bulky and its plant food is more quickly available, but these advantages do not compensate for the loss of fertilizing substances sustained during the process of rotting. Moreover, fermentation begins soon after fresh manure is placed upon the soil, by which all the fertilizing elements are absorbed. While rotted manure acts more quickly, fresh manure is more lasting in its effects. The farmer who has a good manure spreader at hand, and spreads his manure upon the land at frequent intervals, is the one who, other things being equal, has the best crops.

Results

Barn manure works more slowly than commercial fertilizers, but its effects are cumulative and lasting. For these reasons, it affords the best means that the farmer has at his disposal for enriching the soil. More or less live stock is necessary on every farm, and the manure produced should be regarded as a part of the compensation derived from farm animals.

OTHER FERTILIZERS

Peat, or Muck

Peat, or muck, is found in marshes, and is formed almost entirely of decaying vegetable matter. It is rich in humus and is valuable on sandy soils, where it increases the supply of plant food and improves the physical condition of the soil.

Wood Ashes

Wood ashes contain lime, potash and a small portion of phosphoric acid. Hardwood ashes are more valuable than those from soft wood. In some sections wood ashes are used on tobacco land.

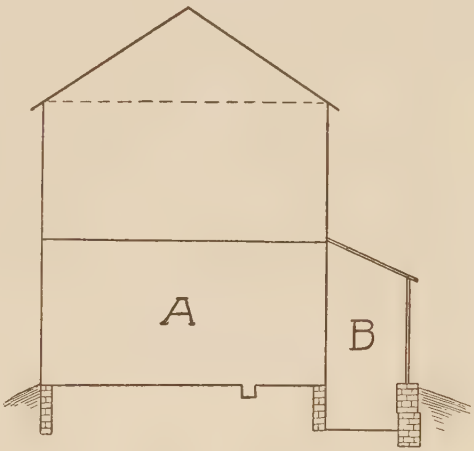
Gypsum

Gypsum, or "plaster," as it is frequently called, is a sulphate of lime and is used for the lime. It is valuable on "sour" or acid soils to counteract the acidity, and on soils deficient in lime.

Composts

Composts are made of alternate layers of manure and vegetable matter. Lime and phosphate, cottonseed and other fertilizing material are sometimes added.

Compost should be located in a shady place and the bed should have good drainage. The heap should be kept moist to prevent loss of nitrogen. When ready for use the compost should be thoroughly mixed before applying to the soil. The plant food in composts is quickly available, and it is a desirable fertilizer where rapid growth is required.



A Good Manure Shed

The floor of the lean-to, B, is lower than that of the stable, A. The floor and the foundation wall should be of concrete, and the side should have a number of doors so that the manure can be easily loaded onto wagons.

Marl

The name marl is given to a variety of earths which on exposure to the air become friable. Their chief ingredients are lime and clay. Marls are sometimes added to soil to improve its physical condition. Their chief value as fertilizers is on worn-out soils or for enriching poor soils. But a large quantity is usually required to make them effective.

Kainit

Kainit, or kainite, is a rock found in large quantities in Germany. It is rich in potash and is extensively used for a fertilizer on soils deficient in this substance. Because of the cost of transportation it is not so extensively used in the United States as in Germany.

Phosphate Rock

Extensive beds of this rock occur in South Carolina, Florida and other localities. It is rich in phosphorus, which is so combined with other substances that it is easily set free in the soil. It is our most prolific source of phosphorus and is used in the manufacture of artificial fertilizers and for direct application to the soil. Large quantities are shipped to Europe, much to the detriment of American agriculture.

Green Manures

Green manures consist of crops which are grown and turned under to enrich the soil. They improve the soil in three ways:

(1) By improving the texture by the thousands of fibrous roots of the manure crop which separate the soil particles and give the moisture more ready access.

(2) By bringing from lower depths and storing near the surface the elements of plant food.

(3) By adding nitrogen to the soil.

Methods Employed. Two methods of green manuring are in general use. The first consists in the production and turning under of crops requiring one or more seasons' growth. In the second, so-called "cover" or "catch" crops, such as those which follow corn, potatoes or other crops that occupy the ground only a part of the season, are sown and turned under the next spring.

The first method has long been followed in the plowing under of clover. In most cases highly beneficial results are obtained.

Crops adapted to the second method are the soy bean and the cowpea. The former is best suited to regions north of the Ohio River, and the latter to regions south of it. Both are good substitutes for clover in their respective localities. In the extreme northern parts of the United States and Canada the Canada pea is sometimes used with good effect. Sweet clover, alfalfa, rye and buckwheat are also used to a limited extent.

The value of the cover crop as a fertilizer consists in its ability to absorb through the roots the nitric acid which continues to be formed in the soil as long as the temperature is above freezing point, and for some time after the first crop has matured. Following corn by such crops as soy bean or winter wheat conserves this nitrogen for the crop the next spring. The process by which this takes place has been described under *Nitrogen and Bacteria.*

Commercial Fertilizers

Commercial fertilizers include phosphates, Chili saltpeter, sulphate of ammonia, guano, tankage and a few others. Their chief purpose is to supply nitrogen and phosphorus for the immediate use of the growing crop. They act quickly, and, when applied judiciously, bring the farmer good returns for his investment in them. However, most of their virtue is expended the first season, and they are of less value than barn manure in permanently improving soil.

Composition. The chief constituents of commercial fertilizers are compounds of nitrogen, potash and phosphoric acid, but different mixtures contain these ingredients in varying proportions, to adapt them to the needs of different soils.

Phosphorus is obtained from bones, phosphate rock, or "floats," superphosphates and Thomas slag. Chili saltpeter, guano and tankage, the last of which is made from the refuse of slaughterhouses, are rich in nitrogen. Sulphate of potash, muriate of potash, nitrate of potash, wood and cottonseed-hull ashes are the usual sources from which potash is obtained.

Application. The fertilizer must be adapted to the soil; that is, it must contain those ingredients which the soil lacks, and in the proportions in which they are

needed. For instance, clay soil needs nitrogen, soil formed from limestone needs potash and nitrogen, black soils need potash and phosphoric acid, and sandy soil all three of these ingredients.

A knowledge of the composition of the soil is therefore essential to the judicious selection of commercial fertilizers. Fortunately every farmer has at his disposal the means of obtaining this information. The agricultural experiment station of his state is prepared to furnish it upon application.

Moreover, it is often profitable to set apart a small plot of ground for experimental purposes. Divide this plot into sections. Plant each section to the same crop, but use different fertilizers. A careful record of the quantity of seed and the quantity of fertilizer and the results of harvest should be kept. The harvest record should show both the grain and the stalks of corn, and the grain and the straw of wheat, oats and barley. Such an experiment usually furnishes a guide for the following season.

Caution. Farmers the country over have been swindled by the sale of spurious fertilizers to such an extent that all states now have laws controlling their sale. These laws require each package to bear a label stating the composition of the fertilizer, and any package not bearing such a label should be refused. If in doubt the farmer should consult his state experiment station before purchasing fertilizer in large quantities.

Mixing Fertilizers

Many farmers prefer to purchase the raw ingredients and mix their own fertilizers. Experiment stations have given careful attention to this question, and without exception agree that under certain conditions this can be done very successfully and at a considerable saving of expense, especially when several farmers combine and purchase the material in large quantities.

The following directions are taken from *Farmers' Bulletin No. 65:*

"A tight barn floor, platform scales, screen, shovel and hoe are the only utensils needed. The materials being weighed, screened and lumps pulverized, the most bulky stock is spread in an oblong pile from six to twelve inches deep; upon its leveled top the next material is placed, and so on until all have been added like layers on a layer cake. Commencing at one end, the pile is shoveled over, reaching clear to the bottom every time. The pile is then leveled up and the operation repeated three times. The mixture may then be screened again if desired."

POULTRY

VALUE

The extent and value of the poultry business in the United States are realized by but few. According to the 1910 census there were in the country on April 15 of that year 280,345,133 domestic fowls, and the decade between 1900 and 1910 showed an increase of 20 per cent in the number of fowls. Large as this number is, it does not include all the domestic fowls because there were many kept on city lots and on farms which were not reported. The total value was estimated at over $150,000,000. To this sum must be added the value of the turkeys, geese and ducks, making a total that exceeds $175,000,000.

ADVANTAGES OF THE POULTRY BUSINESS

Capital Required

In proportion to the returns, the poultry business requires less capital than almost any other business in which one can engage. It therefore offers inducements to people of limited means who wish to engage in business for themselves. One may engage in the poultry business in a small way on a moderate investment.

It is best for those without experience to begin on a small scale; then no serious loss is incurred if things go wrong the first season. The business can be extended as rapidly as the success of the enterprise warrants.

But little land is necessary for even a good-sized poultry farm, unless one wishes to raise the grain used for feed. Small beginnings can be made in the back yard of a city lot, and many back-lot poultry farms are very successful. A city family that can maintain a small flock of hens may always have a supply of fresh eggs and also reduce the meat bill. Moreover, if the right breeds are chosen the eggs sold during the year may more than pay for the feed purchased.

Quick Returns

In most branches of animal industry from one to two years at least must elapse before one can expect any returns on the capital, but in the poultry industry, whether one desires meat or eggs, only a few months are necessary to secure returns. This fact of quick returns makes the poultry business attractive to those having little capital to invest.

Open to Men and Women

Both men and women can engage in raising poultry with equal success, and some of the most successful poultry farms in the country are owned and managed by women.

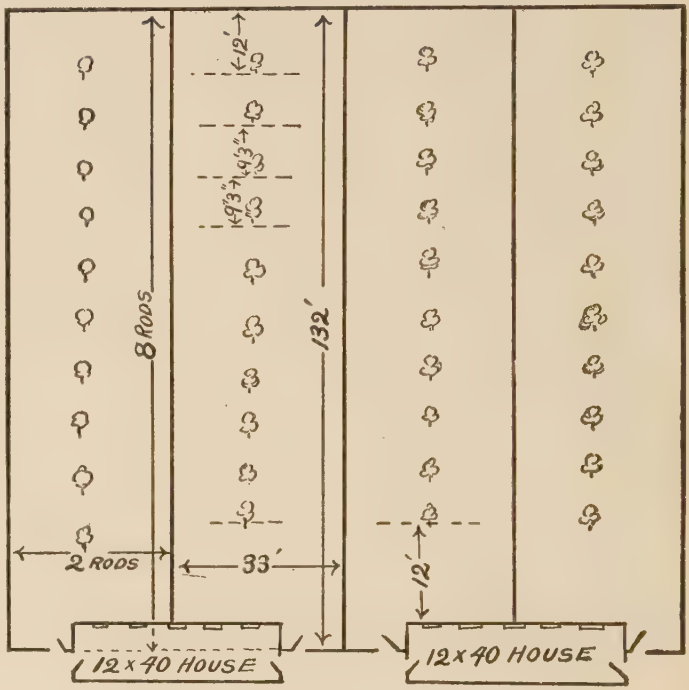
To the person who desires an occupation giving work out of doors, to those who are unable to engage in hard manual labor and to those who desire to retire from strenuous city life and engage in some occupation,—to all these classes, poultry raising appeals.

Ready Market

The poultry man may choose from a variety of products those which he can provide to the best advantage; that is, those which will be most likely to bring financial success.

Whatever products he selects he can easily market. The parcel post brings every farm home into direct communication with the city, and both eggs and dressed poultry, when properly packed, can be shipped by parcel post. Every city contains hundreds of families anxiously waiting to get in direct communication with farmers who will supply them with fresh poultry and eggs. By this means of marketing, the middleman's commission can be divided between the producer and the consumer, becoming a source of profit to the one, and a saving to the other.

Again, since the advent of the parcel post, express rates have been greatly reduced, so that shipments in large quanti-



A Small Poultry Run

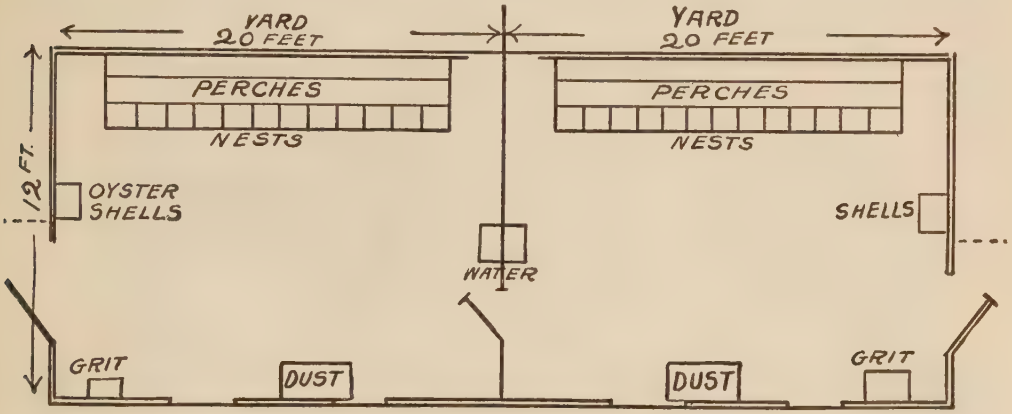
This run is a little less than one-half acre in area. It will accommodate 200 fowls, and it shows how the land can be used for poultry and for an orchard at the same time.

ties and over long distances are much less expensive than formerly. The poultry raiser can reach centers of trade much more advantageously than ever before, and fresh poultry products are always in demand.

Prices vary, however, with the seasons, and the successful poultry man will so manage his flocks as to enable him to take advantage of market conditions. If his product is eggs, he will plan to have

Inspect all eggs carefully; if spots are found on any, see that the spots are removed.

Poultry shipped to individual consumers should be carefully packed, so that no dust nor dirt can reach it. Paraffin or wax paper is inexpensive, and easily procured, and fowls are practically assured of reaching their destination in perfect condition if these materials are used.



GROUND PLAN FOR POULTRY HOUSE

This plan, designed at the Pennsylvania Experiment Station, is well suited for a house of the right size for the run described above.

the largest production of eggs during December, January and February, when they sell at the highest price.

ATTRACTIVE PRODUCTS

The successful merchant always displays his wares in the most attractive manner, and many a farmer would increase his income by following the merchant's example. Customers favor those dealers who put up their goods in attractive packages and who are scrupulously neat.

Dirty eggs, for instance, should never be shipped. Soiled eggs are looked upon with disapproval. A dealer getting a case of eggs in this condition will at once have his suspicion aroused, and will feel that a lot of old eggs has been palmed off on him as fresh. He will seldom repeat his order, and the farmer or poultry man, as the case may be, loses what might have become a good customer.

LABELS

Every poultry man should have his printed label and this should be attached to every package sent out. Select the form and style of label with care. It is your trade-mark, and when chosen should not be changed.

DANGERS

Numerous dangers confront the beginner. We here call attention to those which should always be guarded against, since the old adage "Forewarned is forearmed" applies to poultry raising as well as to many other enterprises.

1. Beginning on too extensive a scale. There are many things connected with every industry that can be learned only by experience, and the beginner in poultry raising is bound to make mistakes which will be more or less expensive. But, notwithstanding the fact that failures occur every year, we constantly see

enthusiastic beginners making at the outset investments much larger than prudence would dictate. If failures occur with a small investment one can ascertain and remove the causes and start again without serious loss.

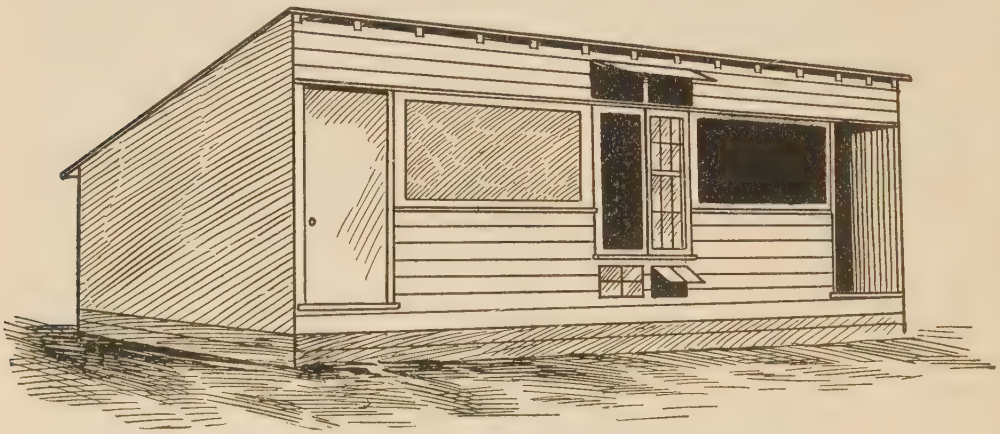
2. Neglect of details. Many failures arise from the neglect of little details. Beginners are liable to misjudge the needs of their flock because they have noticed that fowls on a farm usually do well with little or no care. But on the farm the flock has a large run, and plenty of opportunities to forage. Where the flock is confined in a limited area special attention must be given to food, water and cleanliness. The neglect of any one of these factors will bring disaster. Constant watchfulness to protect the flock from rats and other vermin is also necessary.

3. Overfeeding. Beginners are prone to feed too much, and also to make unwise selections of food. This subject will be more fully treated.

LOCATION

One engaging in poultry raising on a small scale will of course adapt his premises to this purpose as best he may. But one purposing to make poultry raising a business should exercise great care in choosing a location. In the first place, the poultry man should consider marketing facilities. While it is now possible to ship products long distances and have them reach market in good condition, such shipments are expensive and reduce the profits. A farm near a good market is much more desirable than one far away.

The second point to consider is the adaptability of the location to the purpose in hand. A light soil which drains well is more suitable than a heavy soil. If the location does not have good natural drainage the land occupied by the houses and for runs should be underdrained. Fowls will not succeed on wet land.



An Inexpensive Poultry House

The right section of this house has an open front. In the left section ventilation is provided by a muslin front.

A southern or eastern slope is also more desirable than a northern or western slope. Chickens should have plenty of sunlight and the morning sun is preferable.

LOCATION OF BUILDINGS

Buildings should be conveniently located so as to avoid all unnecessary labor. Other points to consider are health of the fowls and liability to vermin and other enemies.

The house should be on dry ground, and the location should be such that

both house and run can easily be kept clean.

On a general farm the location of the poultry house will be affected by the location of other buildings. It should be convenient to both house and barns, but should not be joined to the barn. The location and construction of the poultry house on the general farm should receive special attention because poultry raising there is a sort of side issue, and the fowls are left to care for themselves to a greater extent than on a poultry farm.

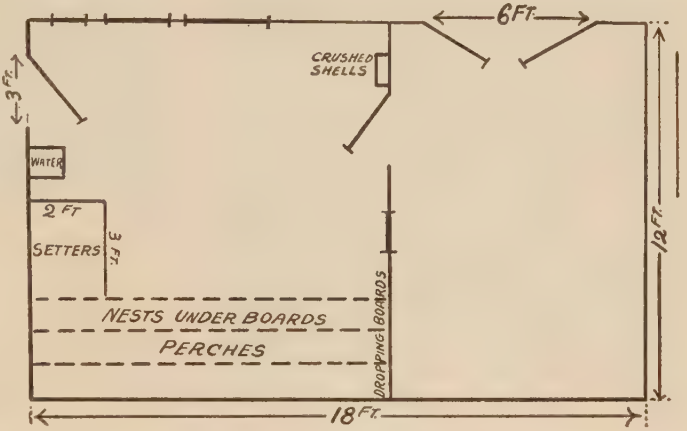
Four or five acres will afford ample space for 800 birds if they are kept in small flocks. In general, growing fowls need more exercise and should have relatively larger runs than mature birds.

The plans given in this chapter are all practical and inexpensive. They are in sufficient variety to meet the needs of all.

THE POULTRY HOUSE

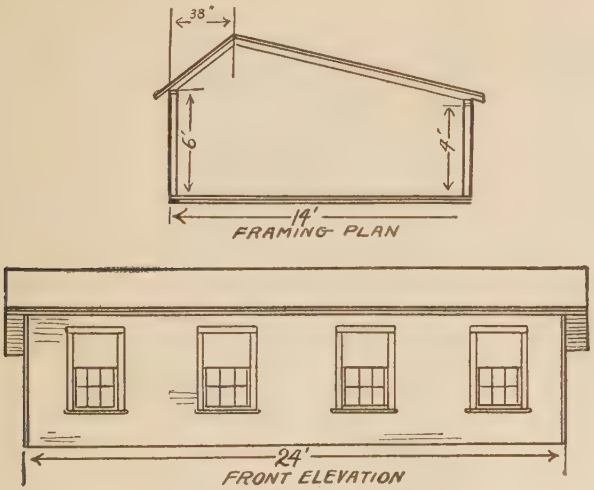
The farm poultry house should be light, warm and inexpensive. Direct sunlight is necessary to the health of the fowls, and there should be considerable frontage on the south and southeast. The windows should be so placed that the sunshine can reach the floor where the birds can congregate during the winter months.

There are numerous patterns varying from the small coop to the large house containing a number of pens. In general, the large, narrow house, well lighted and well ventilated, is the most satisfactory. A good proportion of length to width is 20 to 12; that is, a house 20 feet long should be 12 feet wide. Taking this as a unit of construction, as many units can be placed together as conditions may require. That is, the house may be 20, 40 or 60 feet long, but it should be only 12 feet wide. It is economy to build a house larger than required for immediate use, for it is much less expensive to



PLAN FOR SMALL POULTRY HOUSE

This plan is excellent for a small poultry house either on a farm or in a back yard. It is inexpensive and convenient.

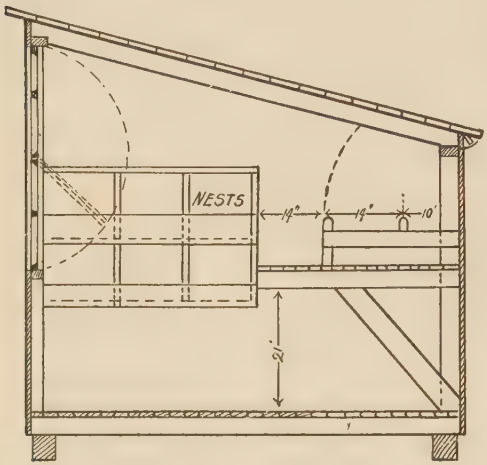


FARM POULTRY HOUSE

This house will accommodate 75 or 80 fowls. Its construction is simple and it is a good economical house for farm purposes.

erect inside partitions, which can be made of canvas, than to build the end of the house. Swing doors connecting the pens are also a convenience.

The general plan here given, and prepared by the Pennsylvania State College, is a good guide for the construction of houses on this plan.



VERTICAL SECTION OF POULTRY HOUSE

This plan shows a hollow side wall, the floor elevated on a concrete foundation, and the nest boxes raised above the floor.

The Foundation

Rats, other vermin and skunks are enemies to be guarded against; consequently the foundation should be so made as to prevent all animals from getting under the floor. Concrete is the best material for foundation walls, but brick and even rough stone may be used. If stones are used, however, all spaces between them must be filled with mortar.

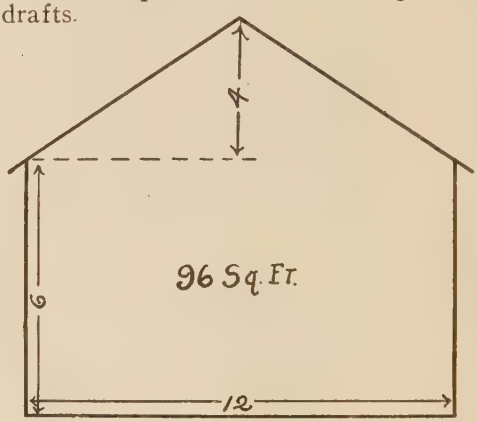
The foundations should extend below the frost line, and have a number of openings to permit ventilation during the summer. During the winter these openings should be closed with tight shutters to prevent drafts, and a guard of strong wire netting should be over them at all times.

The Walls

Wood is usually the most suitable and least expensive material for the walls. In warm climates single walls answer every purpose; but in cold climates double walls with a dead-air space between them are preferable because they better protect the birds from cold.

Roof

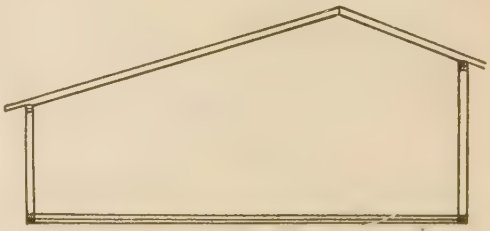
The material selected for the roof will depend largely upon local conditions. Shingles are most commonly used, but tin, slate or other material may be used if more convenient. Whatever the material, a layer of tarred paper should be placed under it to prevent drafts.



POULTRY HOUSE—VERTICAL SECTION SHOWING GABLE ROOF

The Floor

Three types of floor are in general use—earth, wood and concrete. The earth floor is the cheapest, and some claim that it is the best because it always furnishes a dust bath. But earth floors soon become foul, and they are breeding



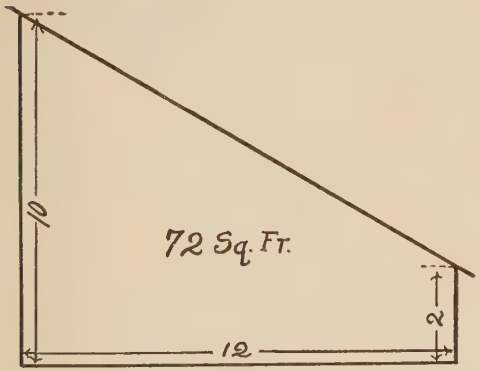
AN ATTRACTIVE DESIGN FOR THE ROOF

places for vermin. If used, the earth to the depth of four inches should be removed and replaced by fresh earth at least twice a year, and this should be

occasionally spaded up and mixed with lime.

Wood.—The board floor is objectionable for two reasons: it is expensive and it affords a harboring place for vermin. It is a necessity in movable houses, but should otherwise be avoided.

Concrete.—All things considered, concrete makes the most satisfactory floor. A layer three inches thick is sufficient, so that the floor is not expensive, when durability is considered. The finish coat should be one inch thick, and made of a mixture consisting of two parts sand to



An Inexpensive Roof

one part cement, to insure dryness. The floor should be covered with a coating of hot asphalt to protect the feet of the fowls and insure dryness.

Windows

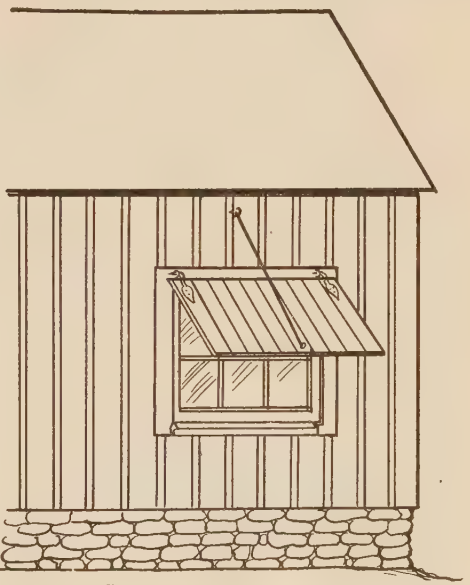
The windows should be placed on the south side of the house, and in cold climates should be small. There should be at least one window in every pen. The windows should be so placed as to allow the greatest amount of sunshine to fall upon the floor during the winter. They should be so placed that their length is vertical, the lower end being about 18 inches above the floor.

Size and Style of Buildings

The size of the building should be determined by the climate, the size of the flock, and the breed of fowls selected. In cold climates where the fowls must be confined within doors for a portion of the year, larger houses are necessary than in climates where houses are used principally for shelter. At least five square feet per fowl should be allowed when the birds must be confined within doors during cold weather. If the houses are not to be cleaned frequently, more space is necessary.

Such breeds as leghorns are more active than larger breeds, and require relatively more space. In all cases, overcrowding should be avoided.

The style of house will be determined by the expense one is willing to incur, its relation to surrounding buildings and the taste of the proprietor. Two general plans are followed: that having the gable roof and that having a shed roof. Sometimes these plans are combined, giving a roof with a long slope and a short slope.



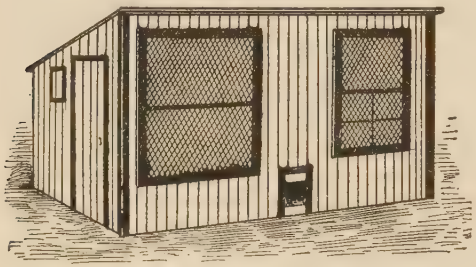
Windows Can Be Protected with Wooden Shutters

Ventilation

Whatever the style of house adopted, in its construction ample ventilation must be provided for. During warm weather open windows admit an abundance of fresh air, but a ventilating system is necessary during cold weather.

Ventilators should be so constructed that they can be readily opened and closed. In cold weather they need to be closed at night, but should be open during the day.

Muslin windows are used by some, and others favor open fronts, which prove successful even in cold climates.

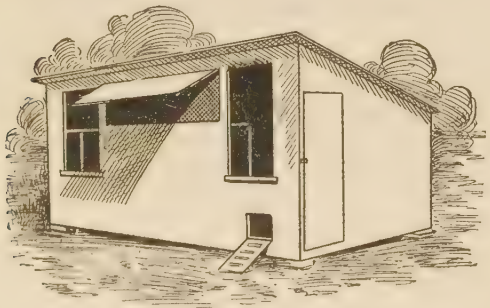


A Portable House

In warm climates wire screen for windows assures perfect ventilation.

Perches

Perches should be so placed that they are easily reached by the fowls, and so arranged that the droppings may be caught without falling to the floor. Perches two or three feet from the floor, for heavy fowls, and three or four feet for the light breeds, are amply high. A ladder consisting of an inclined board with slats across it enables the fowls to reach the perch conveniently. A plain board platform from five to eight inches beneath the perch will catch the droppings. This can be easily cleaned with a flat shovel. The droppings should be saved, since they constitute a most valuable fertilizer.

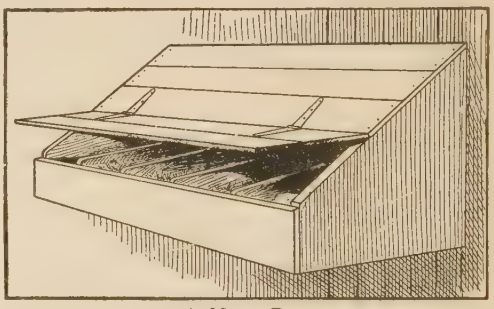


Small Poultry House

This is a good type of house for a back yard. The shutter provides for free ventilation in warm weather and can be closed to protect the fowls in cold weather.

Nests

Nests should be located in a rather dark place and should be accessible from more than one side. They are usually placed against the wall along the side or ends of the house. They should be so located as to occupy as little floor space as possible. It is often convenient to place them under the platform, that is, under the perches. They should be readily accessible for gathering eggs, and so constructed that they can be be easily cleaned and disinfected. A long box divided into sections by partitions, and having a cover that can be raised for collecting the eggs, forms a very satisfactory arrangement. Fine hay, sea grass and excelsior are good nest materials. The trap nest, which prevents the escape of the hen, is often used when the poultry man wishes to ascertain the egg capacity of the different hens.

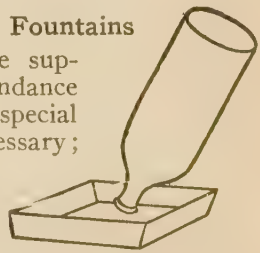


A Nest Box

This box is placed against the wall under the perches.

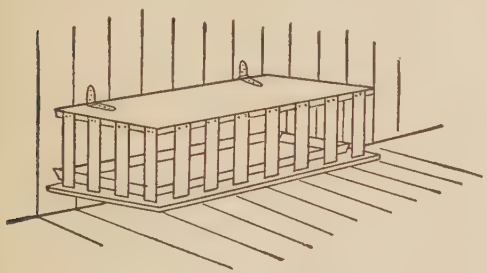
Drinking Fountains

Fowls should be supplied with an abundance of pure water, and special devices are necessary; otherwise the birds foul the water. One of the most convenient and inexpensive devices is shown in the illustration.



A Bottle Placed in This Position Makes a Good Drinking Fountain

It consists of a shallow pan placed on a platform and covered with a board supported on pieces of lath nailed to the edges about two inches apart. The birds insert their heads between the laths to reach the water. The pan should be frequently cleaned and scalded.



A Drinking Fountain

A rectangular pan enclosed in a rack and placed against the wall often saves floor space.

Dust Boxes

During the winter the fowls should have access to boxes containing road dust, in which they can take dust baths. If the boxes are placed where the sun can shine on them their contents will keep dry. These boxes are necessary to prevent body lice.

INCUBATORS AND BROODERS

INCUBATORS

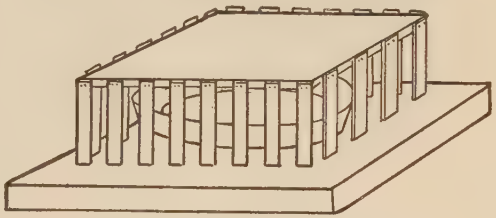
The question of incubation is one of prime importance. Shall the poultry man depend upon natural or artificial incubation? The answer to this question should be determined by circumstances. If only a small flock of chickens, say not to exceed 100, is desired, and if the birds are those known as general-purpose breeds, probably natural incubation is the more profitable. On the other hand, if large flocks are desired and "layers" only are kept, artificial incubation is the more economical.

Success with an incubator requires care and skill, and the latter can be acquired only by experience. For these reasons the beginner should proceed with caution. An incubator holding 100 eggs is large enough to start with.

Selecting the Incubator

In selecting an incubator attention should be given to the following points:

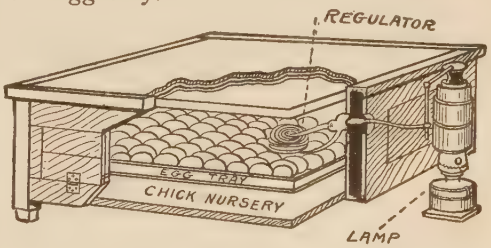
1. Good material and good workmanship.
2. Adaptability of parts. The various parts of the machine should be so arranged as to make it efficient, practical and convenient.
3. Strong legs.
4. Two dead-air spaces.
5. A good lamp. This feature cannot be emphasized too strongly, since the lamp is the vital part of the machine. The lamp should have a good burner and a good chimney.



A Drinking Fountain

A shallow pan of any suitable material can be easily enclosed in a rack for a drinking fountain. This fountain can be set in the most convenient place and is accessible from all sides.

6. A good regulator.
7. A good tray properly placed.
8. A good roomy nursery tray below the egg tray.



Parts of an Incubator

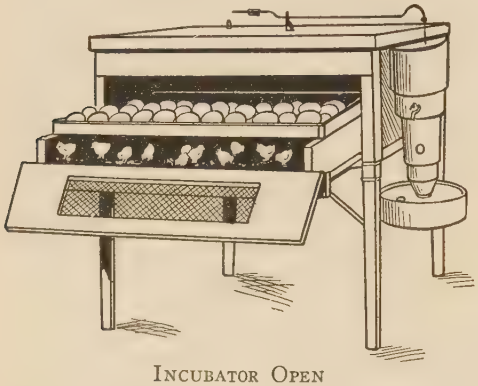
This cut shows the essential parts of the incubator—the lamp, the regulator, the egg tray and the chick nursery.

Operating the Incubator

The incubator should be placed in a room free from drafts and dampness. It should also be so located that it will

not be jarred, since jarring is liable to prevent a good hatch. A room in which an even temperature can be maintained is also desirable, and good ventilation is necessary to success.

The incubator should be visited regularly morning, noon and evening. The lamp should be filled once a day and the eggs should be turned daily from the

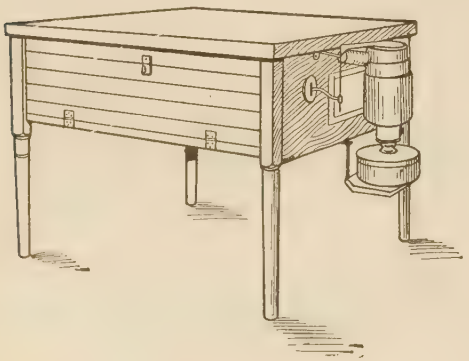


INCUBATOR OPEN

This illustration shows the incubator open and the various parts in use. The removable chick tray is indispensable.

third until the 19th day, after which they should not be disturbed.

The incubator should be tested for at least 24 hours before the eggs are put in. If operated by a beginner a longer test is advisable. Eggs should not be put in until the operator is able to maintain an even temperature. For the first two days this should be 102°, after that 103°.



INCUBATOR CLOSED

A first-class incubator must have tight doors so adjusted that they can be opened and closed without jarring. The frame must also be strong and firmly joined together.

The following directions taken from *Farmers' Bulletin No. 236,* Department of Agriculture, are plain and practical, and if followed will lead to success.

Study your incubator.

Acquaint yourself with all its parts.

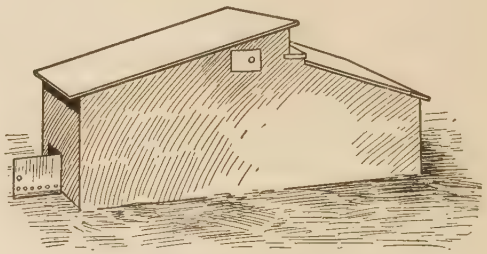
Read the manufacturer's directions for setting it up.

Set it up carefully and according to instructions.

Never try to run an incubator in a drafty place, nor near a stove, nor where the sun shines upon it.

Set fertile eggs only. Waste no effort upon those that are doubtful.

Learn how to trim and clean the lamp.



PORTABLE BROODER

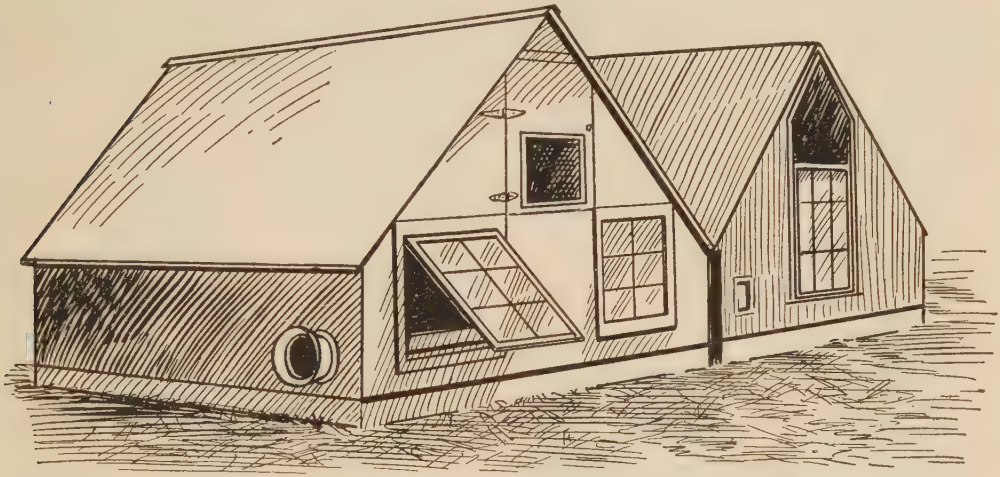
This small brooder is designed for those who raise only a few chicks. It can be readily moved about, is heated by a lamp and is inexpensive.

BROODERS

The brooder is a necessary adjunct to the incubator. For the first few days the little chickens must receive careful attention. The chief requisites of a brooder are:

1. Capable of maintaining a proper temperature.
2. Be easily cleaned.
3. Provide good ventilation.
4. Of such form that all the chickens may readily be seen.
5. Must be dry.
6. Economical of heat.
7. Easy of construction.

There are numerous patterns of brooders on the market from which the poultry man may select those best suited to his needs. On large poultry farms brooder houses are constructed, and in them all brooders are warmed from a single source of heat.



COLONY BROODER HOUSE

This is the type of brooder house used at Cornell University. The houses are warmed by a gasoline heater.

Homemade Brooder

A homemade brooder can be easily constructed as follows:

Take a dry-goods box and turn it bottom up, cutting the sides so that the bottom of the box will form a floor about a foot from the ground.

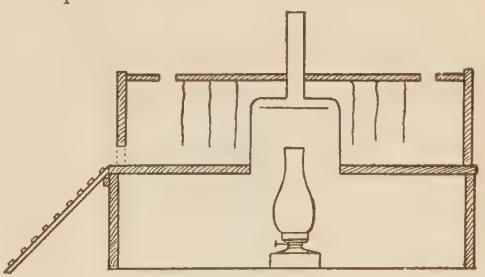
In the center of this floor place a tin box either square or round. This box is placed in an opening in the floor and is also bottom up. A tin bucket will answer the purpose. A small tube should be fitted into the top of this box to serve as a chimney.

Above this floor construct a box a foot high, and hang from the top woolen or felt curtains at frequent intervals. These should not come within two inches of the floor. Narrow spaces should be left between the boards forming the cover, or holes bored in them for ventilation. Make an opening at one side and connect it with the ground by a board ladder, and the brooder is complete.

The lamp under the tin box furnishes heat.

The upper section should be so constructed that it can be lifted off so that the floor can be cleaned.

Brooders should be kept clean and dry and at an even temperature. For the first week this should be from 90° to 100°. After that a lower temperature is required.



HOMEMADE BROODER

A full description of this brooder appears in the text. Its construction furnishes a good task for any boy who has a hammer and saw and a few nails.

BREEDS

The United States Department of Agriculture recognizes 104 standard varieties of fowls. Besides these there are many nonstandard varieties. For practical purposes all these breeds and varieties of domestic fowls may be grouped under three classes: egg breeds, meat breeds and general-purpose breeds. In the selection of breeds the poultry man will be guided by the product he wishes to place upon the market.

BROWN LEGHORN

Leghorns are the best layers. They are also good for meat.

Egg Breeds

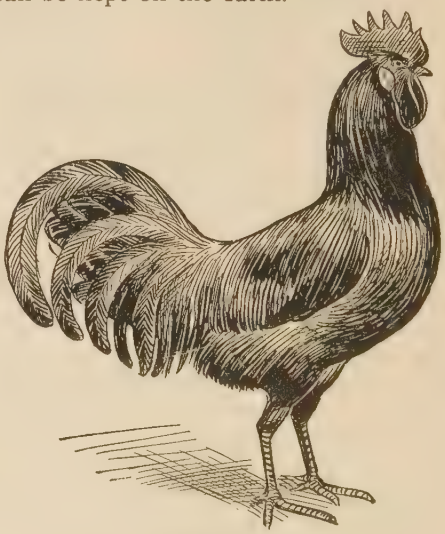
The leading egg breeds produced in the United States are the Leghorn, the Minorca, the Spanish and the Hamburg. We might add the Ancona and the Andalusian.

The Leghorn. The Leghorns head the list as egg producers. In this respect the Leghorn holds the same place among fowls that the Jersey does among cattle. Eight standard varieties are recognized as follows: the Single-Comb and Rose-Comb Brown, Single-Comb and Rose-Comb White, Single-Comb and Rose-Comb Buff, Single-Comb Black and Silver Dorking.

The white, the brown and the black varieties are those most common.

The production of eggs is generally conceded to be the most profitable line of the poultry industry. Consequently, Leghorns are in good demand. They are of a lively, restless disposition, excellent foragers, and will pick up a good part of their living during the year. They are light eaters, and less expensive to raise than the larger breeds. They mature early, and pullets frequently begin laying when four and a half months old.

The hens average between 150 and 200 eggs a year. Their eggs are pure white and weigh about ten to the pound. They are good table fowls, but not so valuable for meat as larger breeds. However, all things considered, the Leghorn is one of the most valuable breeds that can be kept on the farm.



BLACK MINORCA

The Minorcas are good both for eggs and for table purposes. In appearance they resemble the Leghorns.

The Minorca. The Minorcas rank next to the Leghorns as layers. In general appearance they resemble the Leghorns, but they are heavier. The black and white varieties are common, though the black is generally preferred. The Minorcas are excellent farm fowls, since

they are good layers, and also profitable for meat.

The Spanish. The White-Faced Black Spanish is another variety valued for laying qualities. Both hens and pullets are above the average for winter laying. They are handsome birds with greenish-black plumage, large red combs and wattles and white faces.

White-Faced Black Spanish

The White-Faced Black Spanish are known for their exceptional laying qualities. The males are handsome birds.

The Hamburg. Hamburgs are among the best egg producers. Six varieties are recognized. The Silver-Spangled is the most beautiful and most popular variety. Hamburgs lay pretty white-shelled eggs, but they are smaller than those produced by the Leghorns.

General-Purpose Breeds

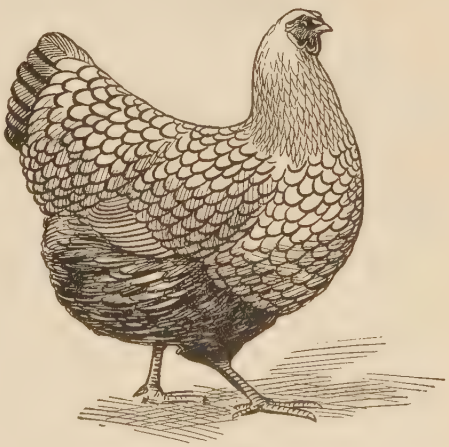
The general-purpose fowl is one that is profitable for both eggs and meat. These hens are most suitable for the poultry man who wishes to conduct his business on a small scale, and as fowls on a general farm.

The Plymouth Rock. The Plymouth Rock is the most popular breed for general purposes. There are six varieties: the Barred, White, Buff, Silver-Penciled, Partridge and Columbian. All have the same weight — cock 9½ pounds, hen 7½ pounds. The Barred are most common, and probably constitute more than half the fowls raised on farms throughout the country. They are hardy, mature early, are good layers the year round, and in winter lay exceptionally well. They are also one of the best breeds for meat. They are good sitters and excellent mothers.

Barred Plymouth Rock

Plymouth Rocks are the best general-purpose breed.

The Wyandotte. Some authorities claim that the Wyandottes are crowding the Plymouth Rocks for supremacy as a general-purpose fowl. There are

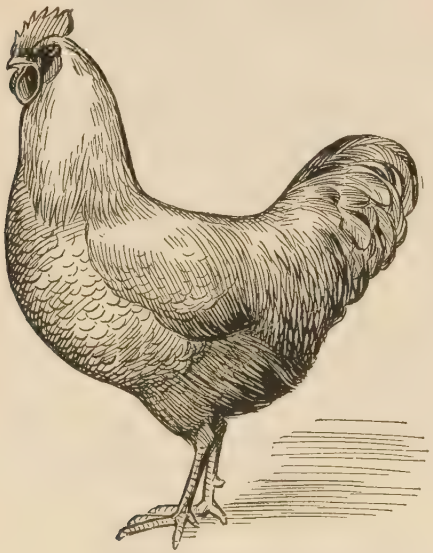


Wyandotte

The Wyandotte ranks next to the Plymouth Rock as a general-purpose fowl.

eight varieties, but the only difference is in the plumage. They are a little smaller than the Plymouth Rocks, have a yellow skin and yellow shanks and legs. As layers, sitters and meat producers they closely resemble the Plymouth Rocks.

The Rhode Island Red. The Rhode Island Reds are one of the new standard breeds, but they are rapidly gaining prominence as a general-purpose fowl. They are about the size of the Wyandottes; they are hardy, mature early and are good layers and sitters.



RHODE ISLAND RED

The Rhode Island Red is rapidly gaining prominence as a general-purpose fowl.

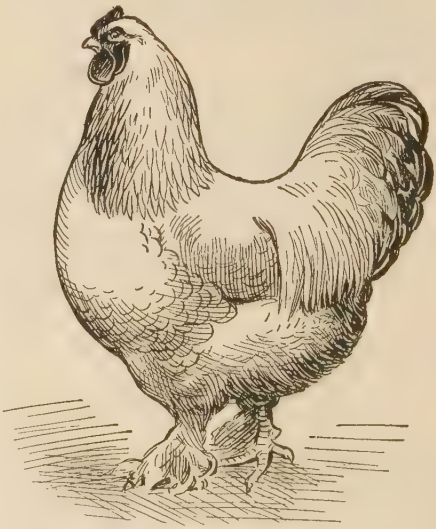
The Orpington. The Orpingtons were originated by William Cook of Orphington, England; hence their name. There are ten varieties, but the Single-Comb Buff, the Single-Comb Black and the Single-Comb White are the only varieties well known in America. Of these the Buff are the most general favorites. The Standard weight of the cock is ten pounds, and of the hen eight pounds.

Orpingtons are good general-purpose fowls and are the most highly prized by those who have raised them longest.

Meat Breeds

Meat breeds are those breeds raised especially for their production of meat. They are larger than any of the breeds previously described, and usually have heavy, thick-set bodies and short legs. They are slow and sluggish in movement and are easily confined. Their meat is of no better flavor than that of some of the smaller breeds, but under certain conditions they are preferred because of their large size. The most common meat-producing breeds are the Brahmas and the Cochins.

The Brahma. The Brahma is a practical farm fowl. There are two varieties, the Light and the Dark. The Light are the more valuable for farm purposes, since they are better layers than the Dark. The Light Brahma is the largest variety of fowl known. The cock should weigh 12 pounds, and the hen 9½. They average from 144 to 156 eggs a year. Their eggs are large, of a rich brown color and of excellent flavor.

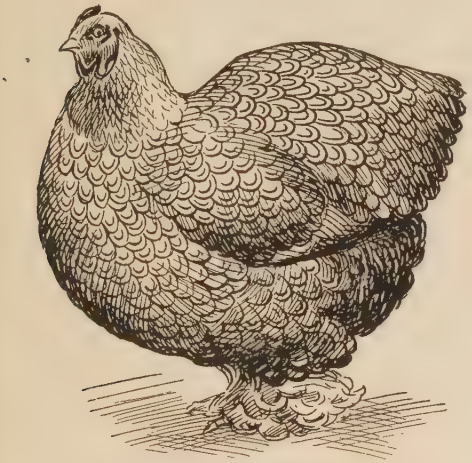


LIGHT BRAHMA

Light Brahmas are profitable fowls for the farm. They are the largest domestic poultry.

The plumage is black and white, with white predominating. The hackle is white with a black stripe down the center, and the tail is black.

The Cochin. The Cochins are smaller than the Brahmas, and weigh about one pound less. There are four varieties, but the Buff is the only one that we need to consider. Cochins are general favorites with those who raise them, and are a profitable farm fowl. They are fair layers and good meat producers. The chickens mature early and afford a supply of choice fowls for the market.



Partridge Cochin

Cochins are pronounced profitable fowls by old and experienced breeders.

SELECTING STOCK

The selection of breeds depends upon the poultry man, and he is usually guided by his fancy and the conditions governing the market most accessible to him. Our suggestion regarding the selection is that the best stock procurable, of the breed selected, be obtained, and we cannot emphasize this point too strongly. A given sum of money invested in a few choice birds of the breed and strain chosen will in the end bring larger returns than the same sum invested in a larger number of common birds.

The latter are not so prolific, do not thrive as well and are more liable to fall a prey to poultry diseases. It costs no more to keep birds of the first quality than those of inferior quality. Numerous failures can be traced to beginning with inferior stock.

The above suggestion does not apply with equal force to stock for the poultry farm, where it will receive necessary care, and to the general farm, where the poultry receives little or no attention. Pure-bred stock has been produced only through successive years of careful breeding, and constant care is necessary to success with stock of high grade.

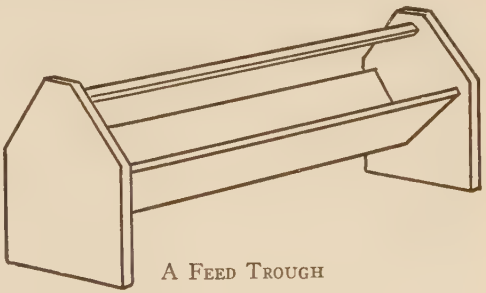
FEEDING

Successful feeding is learned largely through experience, but a few practical suggestions may serve as guides to the beginner. The desired product is the most important factor in determining both quantity and kind of food. If eggs are required, a different system of feeding is necessary than when the fowls are fed for fattening.

Feeding for Eggs

When left to themselves under natural conditions, hens lay the most eggs in the spring. If spring conditions can be maintained throughout the year, the egg-producing period is prolonged, and satisfactory profits are received.

Fowls having a large run eat insects, worms, grass and other green foods and seeds. They also eat enough gravel to supply the necessary grit for grinding the food in the gizzard. A study of the feeding habits of the hen gives us a clue to the sort of ration best suited to egg production. It should contain meat, grain and some green food. The best proportions for the ingredients are not so easily determined.



A Feed Trough

This trough can be easily made by an ingenious boy.

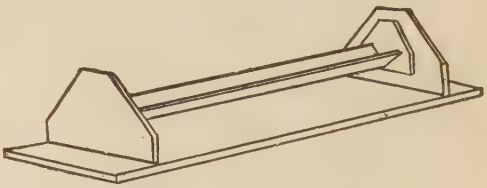
Grain. Without doubt grain constitutes the bulk of the ration. Corn, wheat, buckwheat and oats are all usable, but corn and wheat are the most desirable. Experience shows that a mixture of the two is better than either alone. An excess of corn, wheat or buckwheat fattens the fowls and has a tendency to decrease egg production. Too much corn makes the yolk too yellow for the highest standard, while wheat or buckwheat alone gives a shade too light to meet requirements. The right proportions of these grains are learned through experience. It is found that there is some advantage in giving one feeding a day of cracked corn or wheat moistened with water.

Green Food. Fowls confined in pens and yards need some sort of green food throughout the year. Clover, alfalfa and grass, if fed while young, are excellent foods. The fowls eat them better if they are chopped fine in a feed cutter. Beets are an excellent green food for winter. They should be cut fine enough to enable the fowls to eat them readily, or simply split in halves. Otherwise they will be soiled and wasted. Cabbage is also a good winter food. If neither of these can be obtained, steamed clover hay is a good substitute.

Meat Foods. Fowls that have a wide range in summer obtain their necessary supply of meat food by eating insects and angleworms, but during the winter months and when confined in pens they need to be supplied with meat food at all seasons. Fresh bones finely cut and animal meal are satisfactory meat foods; skim milk is an excellent substitute for these, and can often be used at a saving of expense.

Other Foods. A certain amount of grit and lime should be furnished. The best way is to place these where the hens can have ready access to them. They will then eat what they need. Sulphur, pepper, salt and other substances if used at all should be used with caution.

Caution. While inferior grades of grain can be used with success and at a saving of expense, food that is dirty or that containing decaying animal or vegetable matter should be rejected. Such food is a prolific source of bowel diseases.



A Swinging Feed Trough

This arrangement prevents the fowls' perching on the side of the trough and soiling the food.

Feeding for Meat

Corn and wheat are good grains for fattening fowls. Some of the food should consist of corn meal or ground wheat mixed with bran and made into a sort of mush with water or skim milk.

During the last few weeks of fattening the fowls should be confined in small pens so that they will have but little exercise. The meat will then be tender. An excess of fat should be guarded against, since it is produced at the expense of meat.

Cramming, though commonly practiced in France and England, is seldom resorted to in this country.

ALFALFA

Alfalfa is generally conceded to be the most important forage crop grown. It cannot be grown in some soils, but it is as generally successful as other crops, and by experimenting with a small patch for one or two seasons nearly every farmer can determine what can be done with it on his farm. Considering the value of the plant, the experiment is worth trying. We here give a few hints and suggestions to assist those who wish to know more about this valuable plant. For a general account the reader is referred to the article *Alfalfa*.

Selection of Ground

A light top soil, not sandy, with a light clay subsoil not too close to water, is, if fertile, the most desirable. Land not well drained should not be selected. If the farmer is in doubt about the adaptability of his soil to alfalfa he should apply to the experiment station of his state for information.

Cultivation

One not accustomed to raising alfalfa should begin with a small acreage. The seed bed should be carefully prepared; much more carefully than for corn, if an even stand is expected. Deep plowing is essential, but the cultivation following should be just deep enough to extend below the seed. The cultivation should be repeated until the soil is finely pulverized.

Seeding

The quantity of seed per acre is determined to some extent by the condition of the soil. Assuming that seed of the best quality is used, an average of 20 pounds to the acre secures the best results.

Seed grown in or near the locality where it is used gives a better stand than that brought from a distance. Alfalfa, like corn, must be acclimated, and when the seed is taken from a warmer to a colder climate much of it fails to germinate. It is safer to bring seed from the North than the South.

The manner of seeding will depend upon conditions. The seed should be evenly distributed over the top soil, and covered sufficiently deep to insure germination. For a small field the hand-crank seeder is recommended. On large fields the drill or large seeder is necessary. If the press drill is used the field should be seeded both ways.

The time to seed depends upon the locality. The seeding should be early enough to secure a strong, well-rooted plant, the first season. Otherwise many of the plants will winter kill. In Minnesota and the Dakotas the best seeding time is from about the middle of May to the middle of June. In Illinois, June and July are considered to be the best months and crops may be secured from August and September seedings, but such late seeding is not recommended.

Harvesting

The best time to harvest is when the crop is in early bloom. Then the new shoots which will produce the second crop are just starting from the roots. The crop should be cut from two to three inches from the ground, so that these shoots will not be injured.

Care should be taken to preserve both the quality and the quantity of the crop. The leaves are the most valuable part of the plant, and are easily shaken off when dry. Consequently the less handling the better. The best plan is to cut only what can be handled in a day. The ricks should be covered with canvas or jute to prevent loss of leaves in hauling to the barn or stack.

Alfalfa should be cured on a bright day, and there should be no dew or moisture on the hay when it is stored. Not more than three or four feet of partially cured alfalfa should be placed on mows or stacks at one time.

The farmer should not expect large returns from the crop the first season. If necessary, the first crop should be sacrificed by cutting early to kill the weeds.

Uses

Soil Improvement. Alfalfa belongs to the same plant family as clover, and, like other legumes, extracts nitrogen from the air to assist in building plant tissue. Therefore as a foundation crop for rotation it is as valuable as clover, while the returns from the harvest are much greater. These advantages make alfalfa one of the most valuable crops for improving the soil.

Hay. Alfalfa makes the most valuable hay, and the profits arising from it are greater than those from any other forage plant used for this purpose.

The following table taken from *Alfalfa*, a pamphlet issued by the Chicago and North Western Railway, shows the relative value of alfalfa and other for-

age plants. The estimates are based on two and one-half tons of timothy per acre, valued at $2.50 per ton, and the value is based on the amount of protein.

From this table one can readily see why alfalfa is a most valuable stock food. It seems to succeed about equally with cattle, horses, sheep, swine and poultry.

KIND	Yield per acre	Per cent protein, hay	Pounds protein per ton	Pounds protein per acre	Comparative value per acre, based on protein
Alfalfa	2.5 tons	18.17%	363.4	908	$23.98
Red Clover	1¾ "	13.28%	265.6	464	12.25
Timothy	1½ "	4.74%	94.8	142	3.75
Upland	1 "	6.25%	125.	125	3.30
Brome-Grass	1 "	6.09%	121.4	121	3.19

SILO CROPS

Advantages

The following advantages derived from the use of silo crops are given in *Farmers' Bulletin 578,* entitled *The Making and Feeding of Silage:*

1. Silage is the best and cheapest form in which a succulent feed can be provided for winter use.

2. An acre of corn can be placed in the silo at a cost not exceeding that of shocking, husking, grinding and shredding.

3. Crops can be put into the silo during weather that could not be utilized in making hay or curing fodder; in some localities this is an important consideration.

4. A given amount of corn in the form of silage will produce more milk than the same amount when shocked and dried.

5. There is less waste in feeding silage than in feeding fodder. Good silage properly fed is all consumed.

6. Silage is very palatable.

7. Silage, like other succulent feeds, has a beneficial effect upon the digestive organs.

8. More stock can be kept on a given area of land when silage is the basis of the ration.

9. On account of the smaller cost for labor, silage can be used for supplementing pastures more economically than can soiling crops, unless only a small amount of supplementary feed is required.

Corn, sorghum, clover, alfalfa, oats, rye, soy beans, kafir corn and milo maize are all used for silage.

Corn is the best silage crop; it returns greater yields per acre, and contains more of the essential elements which go to make up a satisfactory ration than any of the others.

Clover and alfalfa probably rank next to corn in value. These plants and soy beans are rich in protein. The chief argument against the use of the first two is that they make excellent hay, and such a crop as corn is more economical.

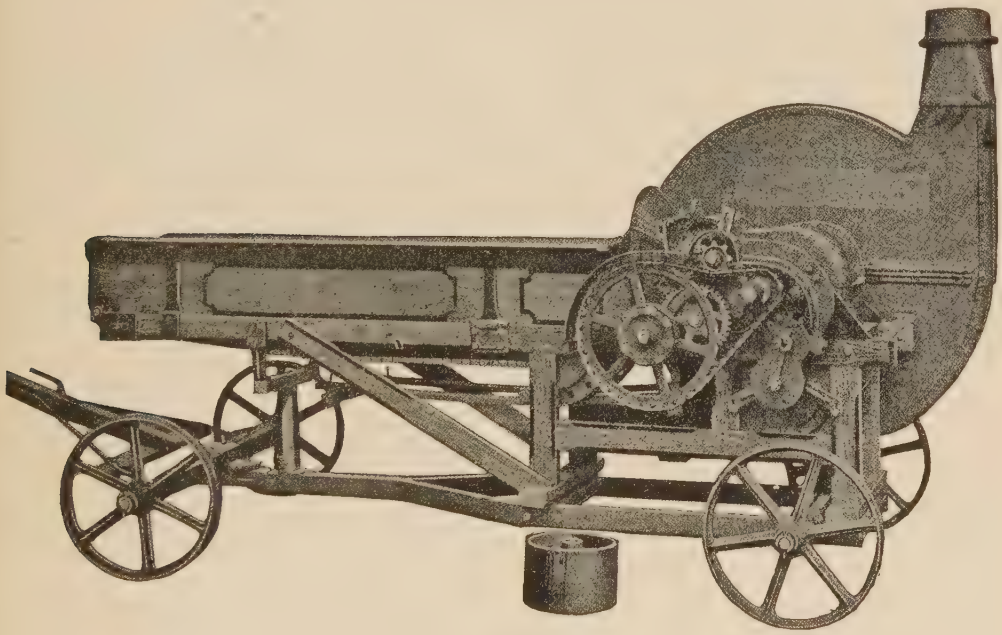
Filling the Silo

Crops designed for silage should be cut before it is allowed to dry out to any extent. Corn if quite green, however, can be left a day or two without damage. Corn makes the best silage if cut after the grain has passed out of the milk, just as some of the blades and husks are beginning to turn brown. It is better that the corn be over-ripe than too green.

All silage crops should be cut in the cutter before being packed in the silo.

Cutters can be set so as to cut lengths from one-quarter to three-quarters of an inch, and the farmer determines what length he desires.

Blowing machines operated by the same power as the cutter are best for filling. As the silage enters the silo it should be evenly distributed and closely compacted, so as to exclude air. After filling it is well to go into the silo and tramp it daily for a number of days.



Silo Filler

Compare this illustration with that of the concrete silo, which shows the filler in position. After the silage is cut it is carried on a movable platform to the blower, shown on the right, which, by means of a powerful blast of air, forces the silage up through the pipe to the top of the silo.

FEEDING

Feeding can begin at any time and many farmers begin to feed from the silo as soon as it is filled. This plan prevents loss from spoilage at the top. However, with careful packing this spoilage should not exceed a depth of six or eight inches, so that no great loss is sustained from later feeding.

Experience proves that silage forms a satisfactory basis for an economical ration for all kinds of live stock, even including swine and poultry. The size and sort of ration will depend upon the animal and the purpose for which the ration is fed. For instance, the ration for milch cows would be somewhat different from that for beef cattle. Forty pounds of silage per day is considered the maximum for cattle.

Much is learned by experience. Perhaps the greatest danger that confronts the beginner is that of overfeeding. Compared in volume with the uncut ration the silo ration looks small, but it may contain twice the nutriment found in the uncut ration. Experiment stations and the United States Department of Agriculture furnish reliable information concerning silo rations, and it is wise for the beginner to secure their bulletins.

LUTHER BURBANK AND HIS WORK

How did Luther Burbank secure the wonderful changes in plants that stand to his credit? This is the first question asked by those who become interested in his work.

His experiments are chiefly along two lines—plant breeding and selection.

PLANT BREEDING

Plant breeding is the uniting of two plants to give birth to a third, and breeding lies at the foundation of the greater part of Mr. Burbank's work.

The first step in breeding is a careful study of the plants which he proposes to unite. This study may extend over several seasons and embrace thousands of plants of each species, brought together from regions widely separated.

After this study has been made, the most desirable plants for the experiment are selected. Mr. Burbank then cuts away the petals and stamens from the flowers on one species, so that bees will not be attracted to these flowers. He carefully gathers the pollen from a flower in the other species by shaking it into a watch crystal. He then places the pollen with his finger on the pistil of the first flower. The ovules produced in this pistil are thus fertilized with the pollen of the other species.

The seeds into which these ovules grow produce the new plant, which is known as a hybrid.

With all the care that it is possible to exercise the plant breeder is unable to foretell the characteristics of the new plant, and many experiments may be necessary before a plant possessing the desired qualities is obtained.

Mr. Burbank has discovered in the course of his experiments that plants which have grown in their present habitat for centuries, like the cactus, are much more difficult to change than plants which have not existed for so long a time in their present environment.

In the production of a new hybrid more than one species are sometimes united, as in the production of the Shasta daisy. In such cases two species are first united, then a third is united with the hybrid thus produced. This plan is followed until all the species required are united in the last hybrid.

SELECTION

Selection precedes and follows breeding, and in no phase of his work do Mr. Burbank's intuition, skill and judgment appear more admirable. He has inspected 100,000 trees in a day and classified them as good, fair and poor without error.

It is through years of careful selection that such plants as come up to Mr. Burbank's ideals are finally obtained, and he will not release a plant for commercial use until the desired standard is reached.

Mr. Burbank differs from other plant breeders not only in his superior ability, but especially in the large scale on which he carries on his experiments. While others have confined their experiments to a few plants under glass or in a corner of some garden, he has employed acres of ground and used hundreds of thousands of, and, if necessary, a million plants.

Each season a small number of the best plants are selected. The next season the best produced from these are chosen, and selections are continued until in the final test the one plant which meets the required standard is obtained. It may be one out of a million.

THE BURBANK POTATO

Few people associate the Burbank potato with Luther Burbank, but it was his first achievement in plant breeding. He was engaged in market gardening and seed raising in a small way, at his home in Massachusetts. In connection with this work he made a close study of the plants under his cultivation. One season he noticed that in a particular lot of potatoes only one seed ball was borne. He reasoned that if the seeds from this ball were planted they would probably produce one or more new varieties. From this seed sprang the Burbank

potato, which it took the young seed-grower four years to develop.

Previous to the advent of the Burbank potato there was a strong demand from the farmers of New England for a potato that would yield more than 200 bushels to the acre. The new potato gave a yield of over 425 bushels and has, under the most favorable circumstances, produced over 500 bushels to the acre. Burbank sold all his rights in this potato to a seed firm for $150.

The value of the Burbank potato is almost beyond estimate, because it cannot be wholly measured in money. The United States Department of Agriculture credits Burbank with adding $17,000,000 annually to the agricultural wealth of the country through the potato. It is also given credit for saving Ireland from famine. In providing a nutritious article of food in abundance, the Burbank potato has not only added directly to the material wealth of the world, but indirectly it has contributed much towards the efficiency, health and happiness of the population of every country into which it has been introduced.

But notwithstanding the success of this, his first experiment, Mr. Burbank has continued all these years to work on the potato. Many new varieties have been produced. Some of these are mere curiosities, but others are of great value. Mr. Burbank's purpose is to produce varieties hardier than any that now are in use, richer in starch and adapted to the climatic conditions of all regions where potatoes can be grown.

NEW WALNUT

Before Mr. Burbank's experiments on trees, tree breeding was supposed to be impossible. Mr. Burbank began his experiments with the walnut. He crossed the English walnut with a common black walnut of California, then for several years carefully selected the most rapid growers. The result was a tree which he named the Paradox. This tree grows very rapidly under conditions to which the ordinary forest tree is subject. Several of these attained a height of eighty feet in fourteen years, and were more than two feet in diameter six feet from the ground. The timber is hard and strong and takes a fine finish. These qualities make it valuable for furniture, interior finishings of houses and various ornamental purposes. A hardier variety called the Royal and possessing the same qualities has been developed by crossing the native California walnut with the black walnut of New England.

In developing these trees, Mr. Burbank had in mind the production of a tree that would be valuable for its lumber, and no thought was given to the fruit. Something of what these trees may mean to the country that is being rapidly deprived of its forests can be seen from the following estimate:

At present, black walnut lumber is worth on an average $250 per 1000 feet. For the best results these trees should be planted forty feet apart. This will admit of thirty-six trees to the acre. In twelve years each tree should yield 300 feet of lumber, board measure, making it worth approximately eighty dollars. This would give an income of $2800 for the acre, without reckoning the additional revenue derived from the branches and slabs used as fuel. But perhaps the greatest advantage is to be derived from the production of a tree which because of its rapid growth will become a most important factor in reforesting regions from which forests have been removed.

BLACKBERRIES

In 1880 Mr. Burbank began experimenting with blackberries, and he has developed many hybrids. Within a few years he was raising black, pink, red and white blackberries from seeds. The most interesting of these varieties is the white blackberry produced by crossing the blackberry with an insignificant bramble bearing small yellowish white berries. The white blackberry bears abundantly and the fruit is large, pure white and of delicious flavor. The greatest care and patience were required in the production of this berry. Over 65,000 hybrid bushes which had not come up to the standard were

destroyed, and only one bush was saved. From that came the white blackberry, now on the market.

Mr. Burbank has not only improved the sizes and flavor of the fruit in other varieties, but he has also removed the thorns.

NEW BERRIES

The Primus berry is a new species of fruit produced by crossing the California dewberry with a Siberian raspberry. The result was a fruit unlike the dewberry or the raspberry in size, form, color or taste. It ripens earlier than any of the standard varieties of raspberries or blackberries. The new berry is a prolific bearer, and a valuable garden fruit.

The Phenomenal berry is even more valuable than the Primus. It was developed by crossing the wild California dewberry and the Cuthbert raspberry. The result was the largest berry ever known. The stalks grow to the length of twelve feet and produce an abundance of berries dark red in color.

PLUMS AND PRUNES

In his production of new varieties of plums and the improvement of old varieties, Mr. Burbank has contributed as much to horticulture as he did to agriculture in the production of the Burbank potato. In the course of his experiments with plums he has made several thousand plum combinations.

Some of the most valuable of these are the "Santa Rosa," "Beauty," "Climax," "Eldorado," "Wickson," "Shiro," and some 50 others. They are the result of the combination of several distinct species, some coming from Japan, some from Europe and others from America. Their perfection required a series of experiments covering fifteen years. But their release to the trade revolutionized the shipping fruit industry of California.

The gold plum, an American-Japanese hybrid, is a very important variety. Another of great value is that made over from the American beach plum. This wild plum is remarkably hardy, often growing where other vegetation will not thrive, but the fruit is small and bitter, unfit to eat unless cooked. Through careful breeding through a term of years, Mr. Burbank changed this worthless wild plum into a large crimson plum of excellent flavor, and the new plum is as hardy as the original wild species from which it has been developed.

But more wonderful than those already described are the plums without pits, of which Mr. Burbank has over 600 varieties.

The advantages which Mr. Burbank's plums have secured to fruit growers are these:

1. They grow more rapidly.
2. They bear earlier.
3. They ripen earlier.
4. The fruit is larger.
5. The fruit is rich in sugar.
6. The large size gives the fruit increased commercial value.

The Burbank plums have become known throughout the world. The late Cecil Rhodes stocked his orchards in South Africa with trees procured from Burbank. Trees have also been shipped to Borneo, where they have practically revolutionized the fruit industry of the island, and are very extensively grown in Australia, New Zealand, South America and Asia.

THE THORNLESS CACTUS

Of all the changes in plant forms wrought by Luther Burbank, perhaps the most wonderful are the removal of the spines from the cactus and changing it from a plant dangerous to both man and beast to one with almost unlimited possibilities as a food for man and domestic animals.

When we realize that the desert areas of the world exceed the entire area of the United States and her outlying possessions, and that the cactus is a plant whose natural place of growth is in desert and semiarid regions, we begin to catch a vision of what it would mean to the welfare of the human race were all these regions devoted to the production of a luxuriant food-producing plant.

This is the possibility which the thornless cactus presents to the world. But the cactus grows with greater rapidity in fertile soil than in desert or semiarid regions, so its possibilities seem boundless. The following is Mr. Burbank's estimate of its value:

"The population of the world may be doubled, and yet, in the immediate food of the cactus plant itself and in the food animals which may be raised upon it, there would still be enough for all."

Mr. Burbank has been experimenting with the cactus for twenty years to remove the spines from the outside, and the woody fiber, usually known as spicules, from the interior. Both these changes were necessary to make the cactus edible. When this was accomplished it remained to develop the fruit.

The Opuntia, or prickly-pear, variety of cactus was the plant chosen for his experiments. Mr. Burbank collected seeds of this plant from all parts of the world in which it grows. By planting these seeds, carefully selecting the most desirable plants from each lot, and by cross-fertilizing from season to season, he finally produced the fruiting varieties.

The plant grows from eight to twelve feet high. The fruit is shaped somewhat like a short, fat cucumber flattened at the ends. Its length is about three and one-half inches and its diameter about two and one-half inches. It varies in color from crimson to yellow and has a delicious flavor. In three years from the planting of the seed a single plant will produce 600 pounds of fruit. In semi-desert regions the plants will yield ninety tons per acre, and with irrigation at least twice this amount.

The fruit is borne on the leaf and sometimes a single leaf bears more than thirty fruits. It is cooked and served in various ways, and also eaten raw. It sells for about the same price as oranges.

The leaves constitute a valuable food for stock and are estimated to possess about one-half the nutritive value of alfalfa. The joints may be cooked or pickled and thus be converted into a wholesome food for man. The East Indian governments have adopted it for use in famines which are frequent there and have made very extensive plantations of it over a vast territory.

THE SEEDLESS APPLE

Mr. Burbank has made great improvement in a number of varities of apples.

In the course of his experiments with orchard fruits Mr. Burbank has demonstrated what wonderful results can be obtained by grafting. He has had as many as 526 different varities of apples growing at once on one tree. This was for convenience in testing varieties.

OTHER FRUITS

Space will not permit of the description of many other valuable fruits which Mr. Burbank has developed. The pineapple quince is a quince having the flavor of the pineapple. It will cook as readily as the best cooking apples and is a wholesome and valuable fruit.

FLOWERS

Mr. Burbank has also given attention to the improvement of flowers. Of these Shasta daisy first calls for attention. The Shasta daisy was developed from the mauntain daisy of New England, where it is regarded as a pest by all farmers, and is the child of three continents. In England there is a larger daisy than that found in New England. In Japan there is a third species, noted for its pure white flowers. Mr. Burbank united these three daisies and the result was the Shasta daisy. The plants are hardy, the stems slender, and the flowers vary from three to six inches in diameter.

Mr. Burbank has improved several varieties of roses. He has developed the amaryllis into a plant bearing gorgeous flowers nearly a foot in diameter. He has originated several new varieties of poppies, and he has also changed one of the varieties of the everlasting flowers into a plant having large rich flowers which is especially valuable to milliners. The everlasting flowers are used extensively by florists for decorating purposes.

Architecture

INTRODUCTION

Architecture is closely allied to painting, sculpture and design on the one hand, to all the applied sciences on the other. From painting, sculpture and design we obtain the elements of beauty so essential to the planning of a structure pleasing to the eye. From the applied sciences we obtain the knowledge of material essential to the strength and durability of the subject.

In the general article *Architecture,* page 133, will be found a concise history of the subject, and descriptions of the various styles of architecture from early to modern times. It is the purpose of the following pages to give some suggestions of how in its simplest forms architecture can be of great value in the construction of farm buildings, and to show by illustrations how these suggestions can be carried out.

FARM BUILDINGS AND GROUNDS

Importance

The farm home should be the center around which cluster all the activities of the farm, and the social activities of the inmates and the ties of affection which bind together the members of the family.

The farm buildings should receive the most careful consideration. The site should be selected with view to convenience of access from all parts of the farm, with due regard to the healthfulness of the location and the beauty of the surroundings. Neglect of any one of these considerations will be a cause of regret, if not of serious inconvenience and even unhappiness, in the years that follow.

When the farm site is once established it cannot be changed without great expense. It is therefore worth while to devote plenty of time to the choice of a location.

THE FARM HOUSE

"Houses stand not for a month nor for a year, but for a generation; by them the thrift of a community is judged, by them the ideals and taste of a community are formed. He who deliberately builds an ugly house condemns himself as a poor citizen; while he who builds a beautiful house is a good citizen, for his personal effort contributes to the public welfare."

—*Helen Binkerd Young.*

"It is the home to which the tired worker retires after the toils of the day are over, to repose and refresh himself, and to enjoy that mellowing family life that lies at the base of all well-organized society; and it is here also and not in the school, as is sometimes erroneously (and sometimes lazily, we fear) supposed, that the rising generation is builded up and imbibes the more vital part of its education, moral and physical."

—*James Casey.*

Planning the home, whether on the farm or in the town, is an important matter, and it should be given the best thought which the prospective occupants can give it.

When once it is built the house becomes the home for a lifetime. Since it is impractical to make extensive alterations, and since even minor alterations are expensive and inconvenient, the original plan should be as nearly perfect as possible.

Suggestions

The following suggestions will help in perfecting the plan:

1. Begin to plan the house as soon as you think of building. It usually requires one or two years, at least, for preparation.
2. Examine all the farmhouses you can, and adopt the good points in them. Don't fail to copy the ideas of others if they are good.
3. Keep a plan notebook in which to record new ideas as they occur.
4. Procure books of plans of farmhouses and study them.
5. When you have collected all the ideas and suggestions you can, call in an architect who is accustomed to designing farmhouses, and submit them to him as the basis on which he is to work out the plans for your house.

An architect is not an unnecessary expense, as some may think. He will discover and remedy the defects in your plan and show you numerous little conveniences which you may have overlooked.

Moreover, a perfect plan combined with the architect's supervision of construction is quite sure to save more than it costs.

Certain Details

The farmhouse embodies convenience, comfort and beauty; in short, it should be as near an ideal home as the means and ingenuity of the builders can make it. It should embody many of those features which make the town home attractive to children and young people. Lack of these has doubtless driven many a boy and girl to the city.

The features we call attention to here are those too often entirely wanting or receiving but slight attention in many farmhouses. They are:

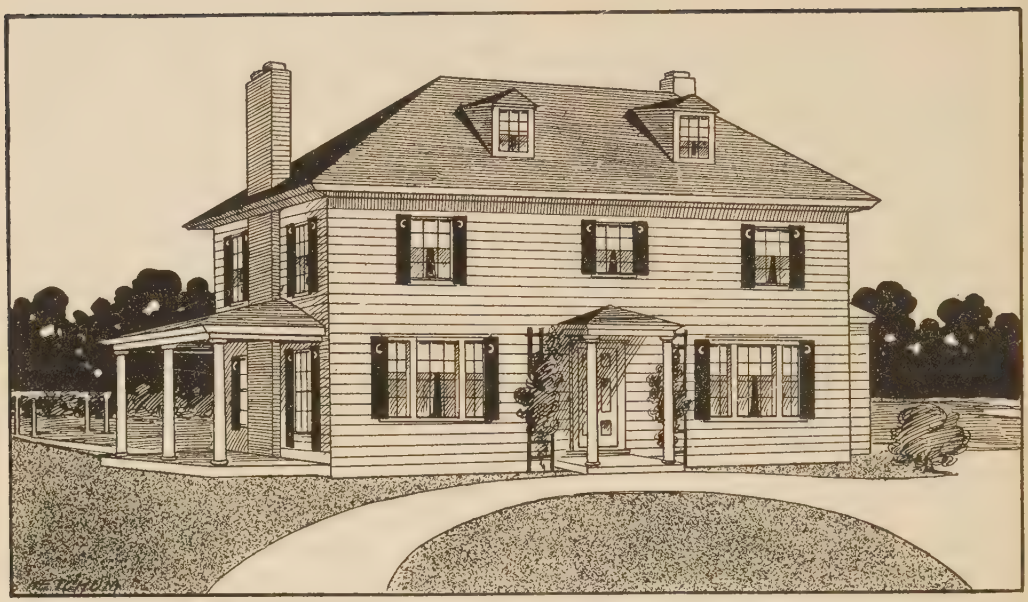
Running Water. The problem of water supply is one of utmost importance. An abundance of pure water is essential, and it is just as important that the water be piped to the house for the family as to the barn for the stock.

When built, the house should be piped for water to the kitchen, the laundry and the bathroom. Running water in the sleeping rooms is also an advantage, but not a necessity.

With the present facilities for pumping water there is no reasonable excuse for not supplying the house with it.

Bathroom. A bathroom is more necessary in a farmhouse than in a city house. With a water supply under pressure, the installation of bathroom fixtures is comparatively simple and the expense is not great.

Open Grate. Whatever the system of heating and ventilation adopted, an open



A Model Farm Home

fireplace in the living room adds cheer and comfort to the home, and, whenever practicable it should be installed.

Heating and Ventilation. There is no longer occasion for stove heat in the country home. Furnaces burning coal or wood, as the locality may require, are common and inexpensive. When the plans for the house are drawn the heating and ventilating systems should be included. They will then meet the requirements of the house, and work in a satisfactory manner. Moreover, the installation of a water system requires a heating system that will warm the whole house, when the location is in a cool climate.

Lighting. There are now so many efficient and inexpensive systems of lighting farmhouses that there is at present little excuse for the use of kerosene lamps. Air-gas systems, which produce light by heating a mantle, are quite successful. Acetylene can be installed with but little more expense, and is generally more satisfactory because less liable to get out of order.

Of course the electric light is ideal, provided the home is so situated that connection with the line carrying the main current is practicable. But here caution is necessary. Buildings should be wired only by experienced electricians, and the greatest care should be taken to prevent fires from crossed or exposed wires.

Sewage. The installation of a water system presupposes a sewer. The sewer should connect with the kitchen sink, the laundry and all bathroom fixtures. It should be laid below the frost line, and extend far enough from the buildings to prevent any injurious effects from its discharge.

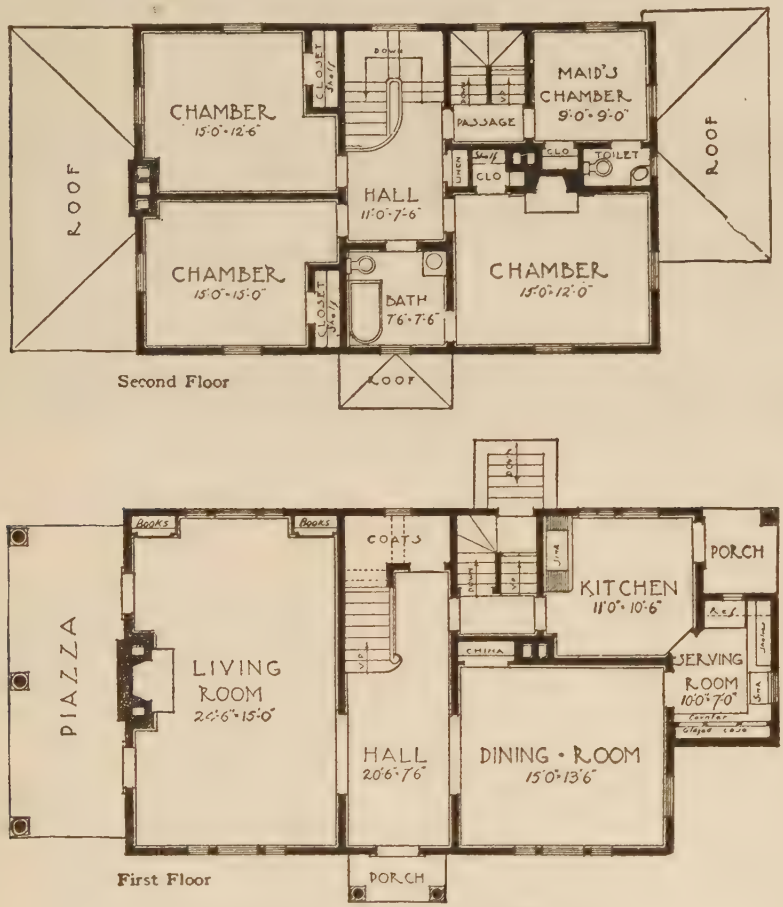
Models

We herewith offer two plans as suggestive of what may be done in the construction of a country home. Both have the merit of being inexpensive, attractive and convenient.

House. The first is of a two-story house and was designed by Mr. A. Raymond Ellis. Its plan has been offered by the *Woman's Home Companion* and the *National Builder.* The house is simple, has no waste space, is easy to construct and to heat.

We call special attention to the size and arrangement of the living room and to the arrangement of the chambers and bathroom on the second floor. The large chimney affords ample opportunity for an open fireplace in the living room.

spectacular. The home-builder is therefore cautioned to guard himself against such appeals. The exterior of the house should be pleasing and should harmonize with its natural surroundings. But in general, dwellings constructed along

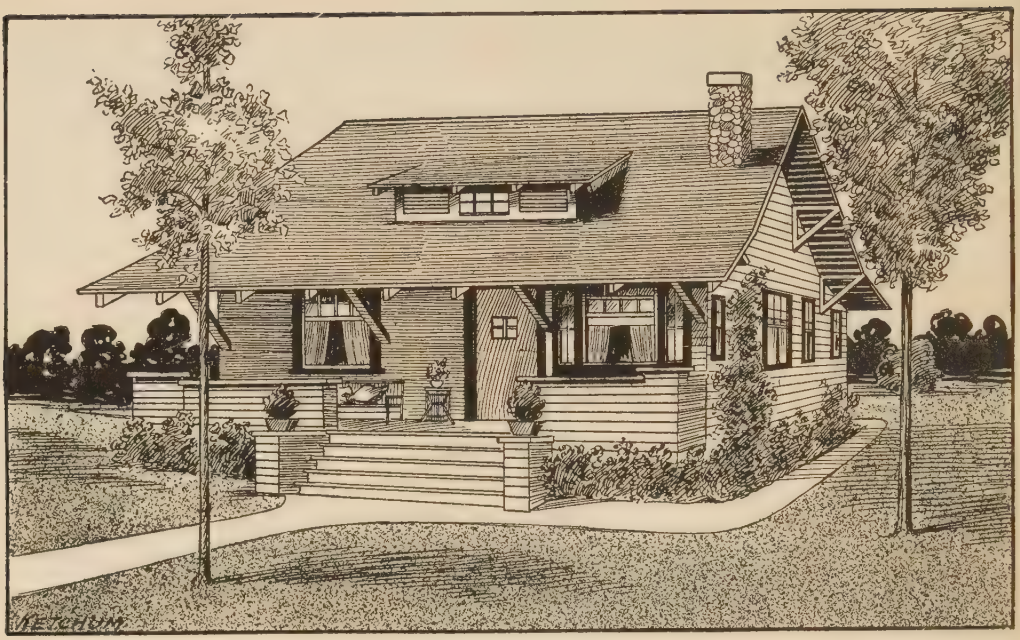


PLANS FOR A MODEL FARM HOME

Houses of this pattern, with a plain exterior, are not only less expensive to build, but they are also much more convenient in their interior plans. Moreover, such houses are more easily warmed and cost less for repairs than those containing numerous gables, roof valleys and angles.

Sometimes architects lead home-makers astray by their strong appeals to the plain, classic lines are the most pleasing and they are sure to stand best the test of time.

For these reasons we have presented these plain, classic models as ideals worthy of careful consideration. They should be considered as suggestive. With these plans for a model any family should be able to work out from them the plans for an ideal home.



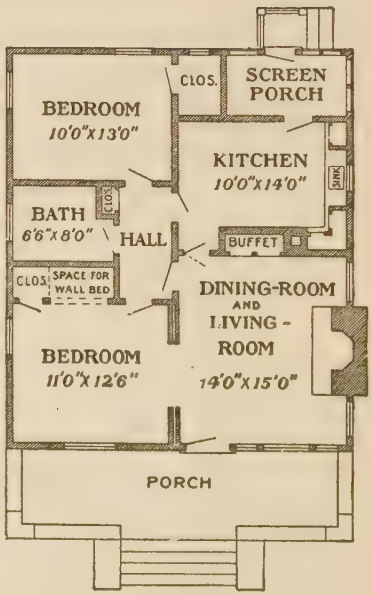
A Model Bungalow

Bungalow. The second plan is of a bungalow. This plan first appeared in the *Ladies' Home Journal,* from which the following description is taken:

The shape of this plan, almost square, is the most economical of space, while the clever arrangement of the rooms tends to reduce the labor of housekeeping to a minimum.

Its simplicity is the charm of this little bungalow. A single gable roof with sweeping eaves covers the whole of it, including the porch. The absence of columns affords an unobstructed view from the front rooms. Interesting features of the design are the combination living room and dining room, with its generous fireplace and built-in buffet, the large closets and the space provided for a wall bed, making the front bedroom available as a den if desired. And $1265 was the very moderate cost of this interesting little home.

It is equally suitable for a small farm, a suburban residence or a village home. It suggests coziness and comfort, two features that pervade every real home.



Plan for a Model Bungalow

BARNS

The barn or barns often form the most conspicuous buildings in the farm group. Their general location has already been discussed, but a word should be said about their location with reference to each other. Careful planning is necessary if needless travel and labor would be avoided. Convenience saves labor, and labor costs money; therefore the extra care and expense necessary to secure the best possible plans and location are a good investment.

1. Have all stables so located in reference to hay mows and silos that the labor of feeding will be reduced to a minimum.

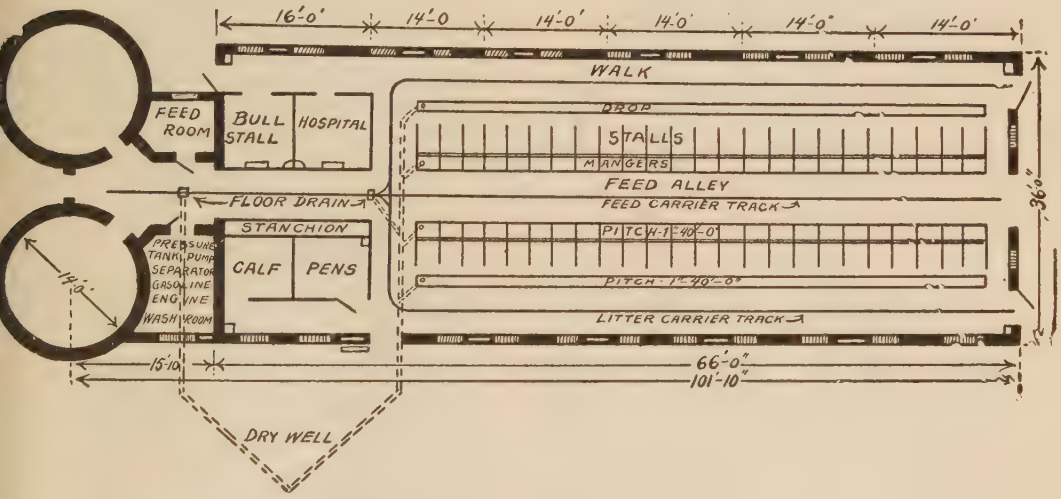
2. So plan the stables that they can be quickly and thoroughly cleaned and that the manure will be properly housed. A clean, well-ventilated and well-lighted stable contributes much toward the health of the stock, and from this viewpoint alone warrants the expenditure necessary.

These items require study of the relative location of silos, barns and manure sheds. These being determined, the plan of the barn should next receive attention.

Plan and Structure

The plan and structure of the barn will be determined by:

1. The purpose for which it is intended.
2. The size of the farm.
3. The amount to be invested in its construction.
4. The taste of the owner.



GROUND PLAN FOR DAIRY BARN.—*Ekblaw.*

The illustrations facing this page show the exterior and a view in the stable of a barn constructed on this plan. This is one of the most modern plans for a dairy barn.

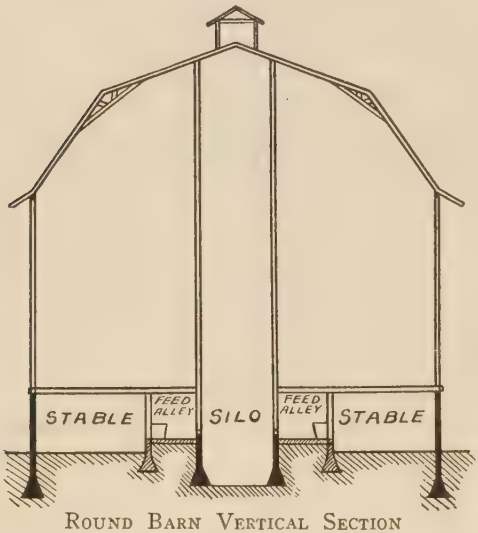
On small farms what might be termed a general-purpose barn is usually erected. That is, the barn serves as a storehouse for the hay and grain, and contains stables for horses and cattle, and may provide shelter for sheep and swine, while the basement or cellar is used for the storage of manure. Barns of this type are common in New England and some sections of New York. However, on the large farms, a separate barn for horses is usually found.

On farms given to a special line of industry, as dairying, the principal barn is planned especially for this industry.

The Dairy Barn

There are two general plans for the construction of dairy barns. One has the stables so arranged that the cows head

in; the other, so that the cows head out. The first plan is generally considered more convenient, as well as more sanitary. The ground plan for such a barn, for which we are indebted to *Farm Structures* by Ekblaw, is given on page 3731.



ROUND BARN VERTICAL SECTION

The round barn with the silo in the center affords some points of advantage for a small barn. But the interior of a large barn constructed on this plan is not well lighted.

The accompanying cuts show the exterior and interior of a barn constructed on this plan. Some details of construction depend so much upon locality they are not treated here. The plan shows the dimensions of the structure.

Round Barn

Since the advent of the silo a new style of barn has become quite popular. It is circular, with the silo in the center, and stables surrounding it, as shown in the diagram. This barn is convenient and strong.

SILOS

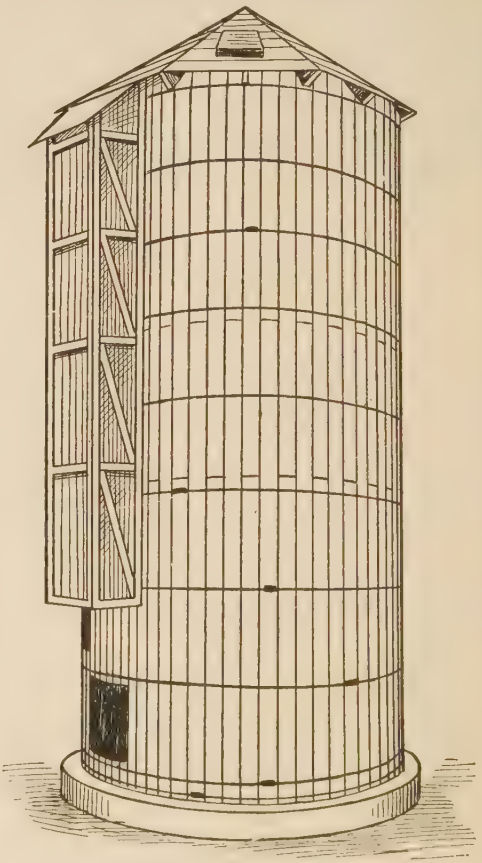
The silo has become a necessity on most stock and dairy farms, and many more farmers would have silos did they realize their value. A good silo soon pays for itself, and is then a source of clear profit for many years.

Location

The silo should be so located that it is convenient to fill and to empty, and it should be sheltered from cold winds. Some prefer to place the silo in the barn, but this is seldom advisable, because it occupies space which can be otherwise used to better advantage. The only saving is in the roof, which is a small part of the structure.

Construction

Three sorts of material are in general use in the construction of silos—wood, hollow tile and concrete. Probably the wood or stave silos outnumber those of all other materials. Whatever the ma-

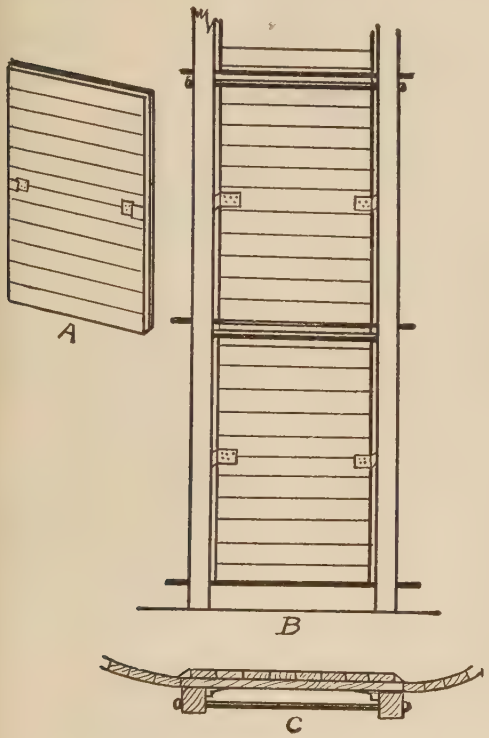


A STAVE SILO

Stave silos are in very general use. They are less expensive than those of brick or concrete, but they are not so durable.

terial used, careful attention should be given to the following features:

Foundation. The foundation must be solid and strong enough to sustain the great weight of the superstructure without settling. It should extend downward



PLAN FOR SILO DOOR

The size and number of doors must be determined when the silo is planned.

to solid ground below the frost line, and should be well underdrained to prevent the accumulation of water from seepage. Brick, stone and mortar are all suitable materials for the foundation, but concrete is the best.

Walls. The walls of the silo must be smooth on the inside, air-tight and strong.

The stave silo is usually made of long staves 2″ by 6″ and held together in barrel form by steel hoops. This type of silo is comparatively inexpensive, tight and in every way successful. If necessary it can be taken down and relocated, without loss, except the foundation.

Stave silos are usually built by firms which make this a business, and shipped ready to erect.

In the employment of concrete either concrete blocks or the solid wall may be adopted. The concrete silo is more durable than any other, but it is also more expensive. It is rapidly coming into use.

SILO DOOR

The ends of the staves are beveled, so that tight joints will be formed when the door is pressed into place in packing the silage.

Doors. The number of doors must be decided upon before the staves are put up. Doors are usually from two and one-half to three feet apart, or they may be continuous. The door should be about two feet wide and three feet long. The doors are sawed out of the staves, the cuts being made at an angle of 45°, so that the lateral pressure of the silage will hold the door in place. The doors must fit tightly or the air leaking in around them will cause the silage to decay. An outside clamp which has a leverage is also an advantage, since the door is secured firmly in position regardless of the lateral pressure from the silage.

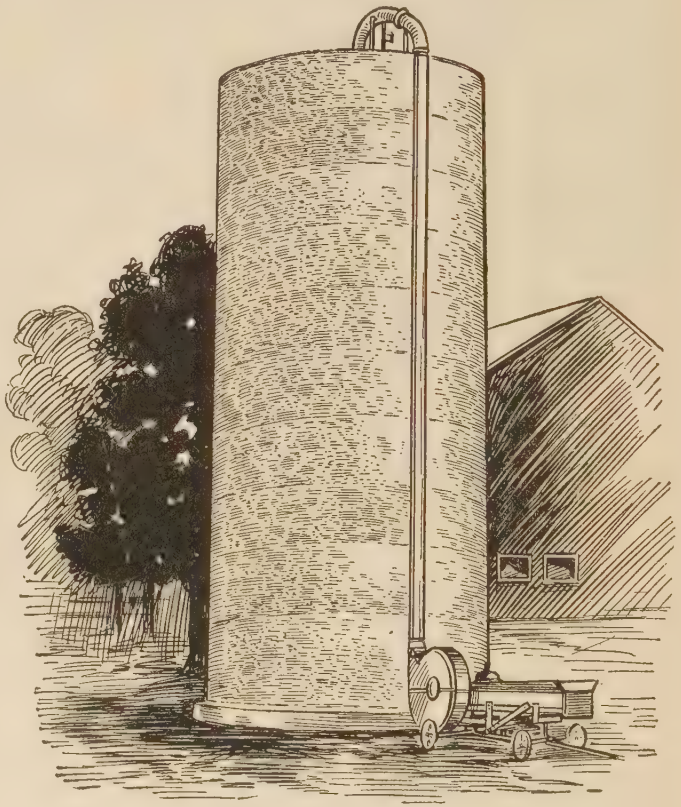
The continuous door is a convenience, but it is somewhat difficult to construct and adds to the expense of the silo.

Roof. The roof can be of light material and it adds only slightly to the expense of the silo. Some think the roof unnecessary, since the top layer of the silage will spoil with or without the roof,

but more silage is spoiled in the open-top silos; besides, the roof gives the silo a finished appearance.

Size

The size of the silo depends upon the number of cattle to be fed, and the length of time the feeding is to continue. The best authorities claim that, after feeding is begun, the silage should be removed at the rate of at least two inches a day to prevent mold. Silos vary from 8 to 22 feet in diameter, but it is not wise to exceed a diameter of 20 feet. In height they may extend to a limit of 60 feet, but the extra expense in filling and emptying makes this height undesirable. A silo should seldom exceed 30 feet in height. A silo with a capacity of 90 tons will feed 25 cows 180 days. One with a capacity of 120 tons will feed the same herd 240 days. Experienced silo builders are able to tell the size of silo necessary to comply with given conditions.



Concrete Silo and Silo Filler

The concrete silo is rapidly coming into use. While more expensive than those made of wood, it is much more durable and has the advantage of always being air-tight.

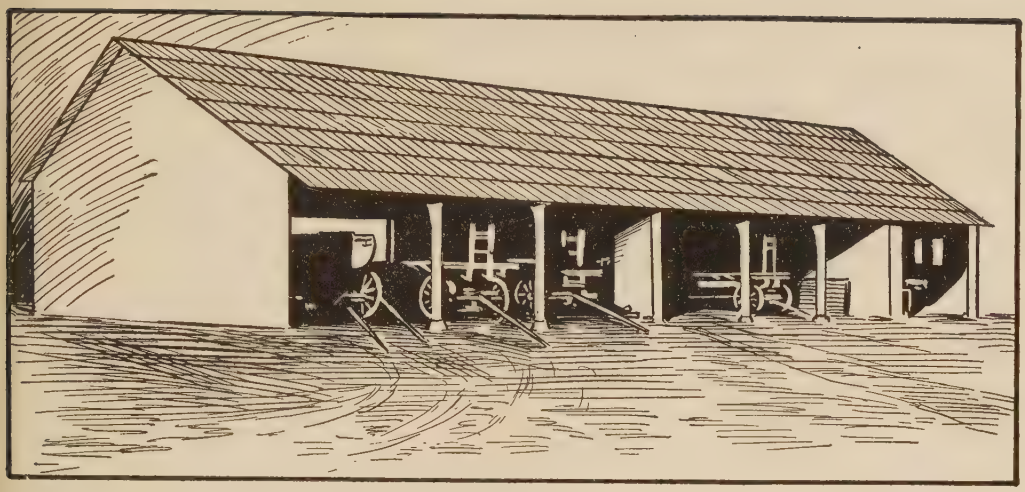
GRANARIES AND CRIBS

Farms on which large quantities of cereals are raised should have granaries for storing the grain, and cribs for drying the corn in the ear.

The granary should be strong, tight and rat-proof. Making the foundation and floor of concrete is a sure means of excluding vermin. If the bins have slanting floors and chutes through which the grain can be run to the wagons, considerable expense in loading is saved. A movable elevator operated by horse power or a gasoline engine for unloading is also a paying investment on a large grain farm.

A corn crib should not be too wide; from eight to nine feet is the maximum width. It may be any length desired. The foundation should be so constructed that rats and mice cannot gain access to the corn. One by six fencing is good material for the sides. There should be an inch space between the boards to provide for free circulation of the air.

Corn cribs are usually unsightly structures, but much of this unsightliness can be avoided without extra expense, if due care is exercised in planning their proportions and design.



FARM MACHINE SHED

More farm machinery rusts out than wears out. A machine shed soon pays for itself in prolonging the usefulness of the machinery it protects from the weather.

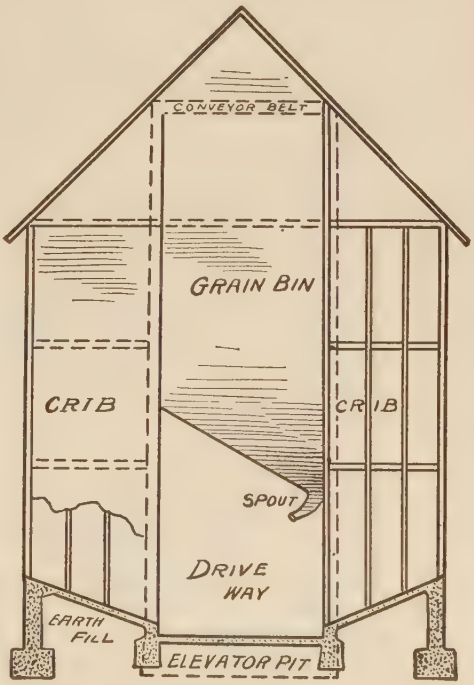
MACHINE SHEDS

"More machinery rusts out than wears out" is a common saying among farmers in some sections. Nevertheless, these same farmers are victims of their own negligence. Even if lumber is expensive it pays to erect sheds to house machinery.

When unprotected from the weather the average life of a harvester and binder is about five seasons. The use of the harvester does not exceed five or six weeks a season, and with proper care it should last several times five years.

A machine shed should be as simple as possible. If 18 or 20 feet wide the roof can be made self-supporting without a truss, a desirable feature, since the interior of the shed should be free from posts. The shed should have a concrete or plank floor. The concrete is better but a little more expensive. The front should consist of sliding doors large enough for free passage of the implements. Of course open sheds are usable, but they are not as desirable.

It is a good plan to make the shed large enough to admit of partitioning off a section eight or ten feet long for a shop.



CROSS SECTION OF MODEL GRANERY

A granery is essential on every farm where large quantities of grain are raised.

PLAN FOR THE STUDY OF ARCHITECTURE

I. **Scope and Meaning**

II. **Oriental Nations**
- 1. Egyptian
  - (a) Pyramids and temples
  - (b) Material and ornamentation
- 2. Assyrian and Babylonian
  - (a) Relation to Egyptian
  - (b) Structures and material

III. **Greek**
- 1. Ionian, Doric and Corinthian
- 2. Celebrated Greek Structures
- 3. Material

IV. **Roman**
- 1. Borrowed from the Greek
- 2. Use of the Arch
- 3. The Colonnade
- 4. Influence of Architecture

V. **Byzantine**
- 1. The Dome and Cupola
- 2. Churches and Mosques

VI. **Romanesque**
- 1. The Semicircular Arch
- 2. Crypts, Façades, Vaults and the Ribbed Groin

VII. **Gothic**
- 1. Distinguishing Feature
- 2. Most Important Examples

VIII. **Renaissance**
- 1. Origin and Relation to Previous Schools
- 2. Chief Characteristics
- 3. Best-Known Structures

IX. **Modern**
- 1. Relation to Previous Schools
- 2. Steel Construction
- 3. Remarkable Examples

PAINTING

I. **Scope and Meaning**

II. **Early Period**
- 1. Egypt
  - (a) Decorations on walls of sepulchres and on mummy cases
  - (b) Walls of public buildings
  - (c) Characteristic features
- 2. Babylonia and Assyria
  - (a) Compare with Egyptian
  - (b) Subjects
- 3. Greece
  - (a) Famous artists
  - (b) Decorations on statuary and buildings
- 4. Rome
  - (a) Compare with Grecian painting

III. **Medieval Period**
- 1. Painting an Adjunct of Architecture
- 2. Effect of Christianity
- 3. Development in Italy

IV. **Renaissance**
- 1. Italy
  - (a) Famous schools and artists
- 2. Netherlands
  - (a) Development of painting in Flanders

V. **High Renaissance**
- 1. Italy
  - (a) Florentine and Venetian schools
- 2. Germany, Holland and Flanders

VI. **The 17th and 18th Centuries**
- 1. Dutch and Flemish Schools
- 2. Contributions of Spain and France
- 3. Contributions of England

VII. **The 19th Century**
- 1. Romantic Movement
- 2. The Impressionists
- 3. The Pre-Raphaelites
- 4. American Painting

HOW TO SEE PICTURES

What does a picture mean to you? Have you any standards by which you are able to measure a work of art? If so, you are an exception.

Nearly every city has one or more art collections, and these may be enjoyed by the general public without cost on certain days. But, unfortunately, this opportunity is of little or no value to the majority of our people, because they are unable to appreciate the works of the great masters.

This discussion is not for the art critics, but is designed to indicate to the lay mind the fundamental points of analysis of a picture. Painting is considered historically and technically in the article beginning on page 2140. The great artists are treated biographically in their proper places. Architecture and sculpture are also treated under their respective titles.

The benefits to be derived from a cultivation of the artistic sense are:

1. Development of taste. How sadly this quality is wanting is attested by the inartistic arrangement of furnishings, light and decorations in the average home, office or store.

2. A stimulus to the imagination. Imagination was formerly thought to be essential only to the poet, musician or painter, but today it is recognized that all great constructive geniuses—men of intensely practical and active lives—are possessed of strong imaginative power. Every important engineering achievement existed first in the imagination of some practical mind.

3. An enlargement of the opportunities for pleasure.

ART IS GROWTH

When we view a modern painting of a lifelike figure that seems to move, or a landscape that we feel that we could step out on, we should bear in mind that the marvelous skill of our artists was not at the command of the painter of a few centuries ago. The present mastery of technique has been developed through long years of study, experimentation and labor. Nor has this development been steadily upward. Periods of growth and achievement have been interrupted by periods of decline.

While many ancient nations, including the Egyptians, produced paintings, the work of their artists is so crude as to merit no consideration here.

In order fully to understand a picture we must try to see it with the eyes of the painter's own age, to recognize in his art what were his objects and his ideals, and to ascertain what were

THE ANGELUS—*Millet*

This is, perhaps, the best known of the works of Millet (page 1850), though not his best painting, critics agree. It is the verdict of experts that *The Sower* and *The Gleaners* are superior to this more popular picture. The picture derives its name from a prayer (page 102). In the distance faintly seen on the horizon, a superb exemplification of the principle of linear and aerial perspective, is the church tower where hangs the angelus bell, whose tones have moved the peasants to reverential attitude. Another technical excellence of Millet disclosed in this picture, as in nearly all others he made, is his mastery of the human figure. This is due to his study of the nude. It is pointed out that the dresses worn by his figures are not clothes, but drapery through which the forms and movements of the body are strongly felt, and their contour shows a grand breadth of line which strikes the eye at once. Millet had an extraordinary power of memory which enabled him to recall every detail of attitude or gesture. The scorn of the truly great artist for trivial details in seeking to convey an impression through broad effects is also strikingly exemplified in this picture.

the ideals and qualities most prized by his contemporaries. We must recognize that old paintings are sometimes valuable, not because of their perfection, but because they combined good qualities with imperfections; and because it is through the study of these imperfections—the meager drawings, hard outlines, erroneous perspectives and conventional glories—that we are able to appreciate better and understand the succeeding steps which have been taken, down to the present day standards of technical freedom and power. It should

also be borne in mind that paintings are not necessarily good because they are old any more than paintings are necessarily masterpieces because they were executed by the men whose names have become famous in art. It should be remembered that even the greatest masters of all times did mediocre work at times.

NATIONAL INFLUENCES ON ART

Not only is it possible for the art critic to tell approximately the date a painting was made, but it is not difficult for him to decide whether a picture be Italian, Flemish, Spanish or English. In fact, this discrimination is possible to many who are not at all to be considered as connoisseurs. "No one could

PORTRAIT—*Gainsborough*

The feathery touch of Gainsborough (page 1119) is seen here at its best. Elegance, refinement and grace are the chief characteristics of his art. Gainsborough and Reynolds stand preeminent as delineators of beautiful women. Their favorite subjects were aristocratic English ladies.

FRUIT VENDERS—*Murillo*

This work by Murillo (page 1940) is a striking example of the ability of a genius to transform a commonplace scene into one of rare charm and beauty. The personality of the artist is also revealed strongly in Murillo's work. No one, even a person with only a smattering of art knowledge, could mistake this picture for the work of any other artist.

mistake one of Jan van Eyck's plain-faced, high-browed Madonnas for any but a Flemish burgher's wife, a class to this day singularly devoid of grace or beauty," says Robert Clermont Witt, M. A., an eminent English art critic; again, "How essentially Spanish are Murillo's dark-skinned, black-eyed beggar boys; and who could mistake the graceful and elegant types of Reynolds, Gainsborough and Romney for any but well-born English men and women? In

Italy, indeed, compounded as she was of many units, the distinction is carried even farther. The Florentine differed from the Venetian as though the two cities had varied, not only in forms of government and history, but in nationality itself."

It is generally recognized that the climate, religion and even the physical aspects of a country all exert an influence on the art of that country, and this influence can be detected and observed by even the amateur in art study.

INDIVIDUALITY OF THE ARTIST

In just the same way that it is possible for the experienced art critic to decide what nation and what time produced a certain art work, it is possible for him to tell almost certainly what artist produced a given picture. This applies, of course, to works which are worthy of high consideration. It is a difficult problem to analyze the peculiarities of the different artists, but there is no disputing the fact that each has his own individual manner of rendering form or color. Certain methods of painting hand and ear, of drapery or landscape background are peculiar to each artist. This is noticeable even among the early painters who may have nearly the same conventional methods as their contemporaries. Filippo Lippi is noted for his broad type of hand and ear; Paris Bordone reveals a curious crumpled way of rendering drapery; Giulo Romano has a characteristic full, fleshy upper lip which differentiates him from his fellow workers even though in many respects he is similar. Even the veriest tyro in art can tell a Murillo at first glance.

It is in this individuality when it is in the direction of attaining greater power and freedom in art that one finds one of the marks of genius. Velásquez is a striking example of a painter who, by reason of his strong individuality and power, stands out in bold relief from among his contemporaries. It is in this way that some painters exerted their great influence on art and came to give their name to certain "schools" of art. Such transcending geniuses as Michelangelo, Raphael, Titian, Rembrandt and Rubens, each of whom stood at the head of a large "school," have exerted far-reaching influence on painting. Of these, Raphael attained the highest point of technical perfection and coupled with it a marvelous creative power.

That the influence of a great artistic individuality persists long after death one may see demonstrated in the traces of Titian to be found in many of the pictures of Van Dyck, Delacroix and Watts. How many noted painters were inspired by Rembrandt! Rubens' influence can be detected in the work of Watteau, Hogarth and many others.

Thus, in studying a picture we should take into consideration the personality and life of the painter and of the circumstances which led him to choose the subject of his picture or treat it as he has. Take Rembrandt's *Night Watch,* for example: What suggested this idea to him? Was his motive ambition or rivalry? Did he paint it to keep his creditors at bay and provide for his family? Did he dash it off red-hot in a fine frenzy of inspiration as Tintoretto or Frans Hals would seem to have worked, or was it, as with Leonardo, the result of long periods of toil and study and thought? Did the subject of the picture form slowly in the painter's brain, and was it worked out piece by piece, as is apparently true of the achievements of the great masters, or was it a glimpse of some face or scene that flashed across the artist's vision?

Not only should we take into consideration the character of the painter and the time in which he worked, but we should also study the work with regard to the period in the artist's life in which the subject under study is being considered. Artists, like poets and writers, pass through periods of development, and the early work of even a Raphael or a Velásquez compares unfavorably with even the poorest achievements of their days of full power.

ONE OF THE WORLD'S GREAT PORTRAIT PAINTINGS

THE SYNDICS OF THE CLOTH HALL—*Rembrandt*

This painting of the great Dutch master was executed towards the close of his career at a time when the genius of Rembrandt (see page 2422) had reached full maturity. Nearly thirty years separate this painting from *The Lesson in Anatomy,* years of long-continued observation and labor. The knowledge thus gathered, the problems solved, the mastery obtained, are shown here in abundance. "Rembrandt," says one admirer, "returns here to the simplest gamut of color, but shows his skill in the use of it, leaving on the spectator an impression of absolute enjoyment of the result, unconscious of the means. The plain burghers dealing with the simple concern of their gild arrest our attention as if they were makers of history. They live forever; and we close our eyes to the strange perspective of the table."

When we stand before this painting we are struck by the effect that is produced by the artist without the use of strong coloring. The management of the lighting arrangements, the composition of the picture, the countless devices the artist has used to bring the several characters into harmony and unity, are all undeniably the achievements of a great genius. And yet these achievements are only possible after an infinite amount of labor and study. What sometimes appears to be the result of inspiration is usually due to long and persistent toil, practice and thought.

It would be instructive to make an examination of the perspective of the table in this picture.

THE SUBJECT

One of the errors of judgment most noticeable in the uninformed is the tendency to place too much emphasis on the subject of a picture, and to give too little attention to the skill of the artists. There is, in fact, a tendency among inferior painters to attract attention by the sensational nature of the subject, rather than by the mastery of its treatment. With the truly great artist the most commonplace subjects, even ugly or grotesque characters, make masterpieces of pictorial art.

There are three main divisions of subjects, historical, landscape and genre, or common life. The historical is again divided into the religious, mythological, allegorical and portrait.

LAUGHING CAVALIER—*Hals*

In this marvelous portrait Frans Hals (page 1262) has given us a magnificent example of vigorous brushwork combined with wonderful delicacy in working out the pattern of the dress. Observe how well placed in the frame is the figure.

The Dutch School is usually referred to as a striking example of the triumph of pictorial skill over subject, for the Dutch masters transform the dullest subjects into wonderful pictures.

DRAWING

The first consideration in studying a picture is its drawing. So familiar is everyone with the forms of natural objects, that it is comparatively easy to detect a serious error in their representation, whereas mistakes in coloring or light and shade might go unnoticed. Drawing was the first step taken in pictorial art. Traces of crude pictorial outline scratchings on rock are left us from the time of the cave dwellers. By drawing is meant more than mere outlines, for it includes the definition of every detail within the boundaries of the outlines. It means the artist's feeling for the shape of things, their mass, roundness or squareness. The outline is, of course, an artistic means of representation—a convention it is called. In actual life no outline surrounds objects. Forms melt into each other by imperceptible gradations. The great masters have recognized this truth and worked out their pictures accordingly. However, it is possible to separate the drawing of a picture from its color and to consider one feature at a time.

Many pictures owe their chief charm and their permanent art value to the beauty and grace of their lines. Many artists who have been splendid draughtsmen have been poor colorists. In the early days of art, however, few artists were good draughtsmen. The problems of proportion have been worked out with scientific exactness by many students of the subject, including the great masters, Leonardo and Dürer, until today such knowledge has become the mere rudiments of the painter's art.

It is interesting to know that the drawing of the human figure has advanced also to a point of scientific correctness over seemingly insurmountable difficulties. A knowledge of anatomy is now regarded as essential to artistic representation of the human figure, even though the figure be clothed or draped. Many artists, indeed, draw the nude figure first and drape it or clothe it afterward. At one time the representation of the hand and fingers was done in a singularly awkward manner.

Even the treatment of the draperies themselves tests the artist's skill in drawing, and it is a subject of note that draperies are represented differently by different artists. Draperies may add dignity to the figure or emphasize the sense of movement; they may be simple or elaborate, broadly rendered or broken into minute folds. But however they are done, it is a point of interest to study and appraise the correctness of the artist's vision.

Perspective is the most important element in drawing, and this phase of art also has evolved through slow stages to one of scientific, as well as artistic, exactness. Reference to some of the early works of painting show how little sense of perspective was possessed by the men of that time. Today even the untrained eye is quick to detect any serious faults in perspective. Perspective has been defined as "the means whereby the appearance of solid objects and their relative distance from the eye can be rendered on a flat surface." Perspective has been found to be a matter of mathematical rules and formulas. These laws were discovered in the 15th century, and before that time the painter trusted entirely to his eye.

However, it has been observed that even after the discovery of these exact laws, the greatest painters have scorned to be bound by exact rules in the rendering of perspective where a particular effect was at stake. Even Raphael ignored these laws in his *School of Athens* and other works. Visitors to the Vatican in Rome have observed that there are two vanishing points in the *School of Athens*. The same criticism is made of Veronese's *Marriage of Cana*, in which the capitals of the Doric column are extraordinarily incorrect. Even modern painters, such as Hogarth for in-

stance, have on occasion seen fit deliberately to ignore perspective. In fact it has been said of Turner, who was professor of perspective at the Royal Academy of England, that he did not even know what he professed, and that he never drew a building in true perspective in his life; he drew them only with such perspective as suited him.

COLOR

Next in order in points of analysis of a painting is the color thereof. Here again we learn that this aspect of the painter's art has advanced by slow stages to its present degree of complexity. The early fresco painters used simple colors in conventional treatment. One of the first impressions that will strike us from a study of the work of even the greatest colorists is the different styles and methods used. The Florentine School, the Venetians, the Dutch, the Spanish and the English—all vary widely, ranging through gay, glowing, somber and cold.

THE FIGHTING TÉMÉRAIRE—*Turner*

This famous water picture was exhibited first in the Royal Academy of England in 1839. In the preceding year, Turner (page 2944) and several friends were taking a trip to Greenwich by water. On the way they met a steam tug towing a battleship that had outlived its usefulness. "That's a fine subject for you," one of the friends observed. Turner adopted the suggestion and *The Fighting Téméraire* is the result. Turner loved the sea, and he loved colors. Ruskin pronounced him one of the "seven supreme colorists of the world." It had been said, on the other hand, that Turner, in his efforts after brilliancy, was sometimes reckless in his experiments. In this picture, *The Fighting Téméraire,* Turner throws around it something of pathetic feeling. The old three-decker, looking ghostly and wan in the evening twilight, is slowly towed along by a fiery, black little steam tug—a contrast suggesting the passing away of the old order of things and the advent of the new, and behind, the sun sets red in a thick bank of smoke or mist.

If we compare pictures by Fra Angelico, Titian, Rembrandt, Hogarth and Claude Monet, considering them from the viewpoint of color alone, we will be struck by the difference.

The early painters used few colors and kept each distinct from the other. Skies were always blue, rocks brown, trees green. It was unnatural, of course, but as near nature as the artists of that day could approach. Nor did these early painters understand the principle of atmospheric or aerial perspective. They had not discovered that even a red cart takes on a different hue when seen from a distance.

But it is not enough for an artist to render the various objects in a scene with fidelity to nature. The colors must harmonize to form what is called a "tone." The modern artist knows that every color reflects or contrasts every other color. A common illustration of this may be observed by holding a red geranium against a gray wall with the light in front of it, and then holding it against a bright sky. In the first place it will appear bright red; in the second it will look almost black. It is the painter's business to observe these modifications and to regard every scene with an eye to the general effect which the different colors in the scene exert on each other. It has been said that color values are to the painter what harmonies are to the musician.

We must not allow ourselves to be deceived by brilliant colors. A picture may be gaudy with bright, unblended tints promiscuously spotted together in a kind of patchwork, and yet not be harmonious. We should learn that great art may lie in the subtle and subdued consistent compositions whose perfect blending and harmonies reveal the true artist's insight into the use of color.

The Venetians are noted for their warm and brilliant tints and for their practice of bathing everything in a flood of rich golden light. The Venetians also made much use of black. Their success in representing the black of velvet, silk or brocade was marvelous. They also used few colors to gain their effects. Titian's *Crown of Thorns* in the Munich Gallery was executed with four colors—black and white, red and orange; yet the effect is rich and striking.

Perhaps the ablest master of color of the Venetian School was Rubens, and his superb freedom and courage in the use of sumptuous tones is the marvel of the art world. Rembrandt, Titian, Correggio and Tintoretto were also marvelous masters of color.

It must be borne in mind in studying the color effect of a painting that precise fidelity to nature is not essential. Of course the colors must be sufficiently like nature not to offend the spectator. Color is not a matter of truth but of feeling. It is related of Turner that a woman critic once complained that she could not find in nature all the colors he had painted in his picture, and he replied: "Don't you wish you could, madam?"

One of the tests of the painter's skill is his ability to represent flesh, and here again we find the widest possible variation in the works of the masters. It is hardly too much to say that every variety of complexion is rendered by the painters, from the healthy, ruddy flesh of Rubens to the pale, anæmic faces of Burne-Jones. And yet, in the various keys of tone in which these painters worked, each was truthful.

Sistine Madonna—Raphael

Of all the Madonnas (page 1741) painted by Raphael (page 2404), the beautiful *Sistine Madonna* is the most famous, as it was his last. It was executed entirely by the master's own hand for the monks of San Sisto of Piacenza, a small town some distance north of Rome. A mystery which probably never will be solved attaches to the execution of this picture, in that it was painted at a period which would seem to have been the one when Raphael could least have found the necessary time, for sovereign princes were not able to obtain his services, so keen was the competition. It would be interesting as well as instructive to know what moved the master to paint this magnificent creation, which is numbered among the twelve great masterpieces of the world (page 2144).

It has been suggested that there may be some connection between this painting and the visit which Raphael made to Florence in 1515. Pope

THE DOCTOR—*Fildes*

This picture, by Sir Luke Fildes, R.A., a contemporary English painter, tells its own story more eloquently than words. This painting is not offered as one of the greatest art masterpieces, but as an example of contemporary art. The original is in the National Gallery of British Art.

Leo X had gone north to meet Francis I and sign a treaty of peace in October of that year, and Raphael was summoned to meet the French King. Acquaintances made by Raphael on this trip doubtless resulted in the painting of the *Sistine Madonna*. Whatever the cause, the *Madonna* was painted by Raphael himself apparently without preliminary sketches, and on very fine canvas, contrary to his usual custom of painting on wooden panels.

The *Sistine Madonna* is one of those pictures which appeal alike to the learned and the simple, and to those holding very divergent views on art. It is the intense humanity of the picture no less than its artistic perfection which makes it have so strong an appeal. "No other painter," says a noted critic, "succeeded quite in the same way in making the Virgin Mary a true woman without losing spirituality. An element of the commonplace, or else of worldly pomp, too often took the place of the older painters' simple religious conceits. The intensely sympathetic nature of Raphael enabled him to paint the very essence of Divine love in a way which no other painter has ever achieved. The Child Christ is above criticism. Raphael has here done what others have tried to do and failed. It is because this picture is so simple, and makes so little demand upon anything except the deepest feelings in our nature, that those who are best qualified to speak pronounce the *Madonna di San Sisto* the greatest picture in the world."

LIGHT AND SHADE

After artists had worked out the problems of perspective, form and color, they began to make a study of the effect of the lighting of a scene. This led to the discovery that the use of light and shade could be made marvelously effective in endowing a picture with a halo of romance, or mystery, or beauty, or any sentiment whatever, at the will of the artist. The term for this technical

Ecce Homo (Behold the Man)—*Ciseri*

This large canvas by a modern Italian artist (Antonio Ciseri, died in Florence, 1891) is now in the National Gallery of Modern Art in Rome. The artist takes us upon the colonnade with Pilate and Jesus, and gives us a sense of the mad crowd below—immense, implacable—shouting "Crucify him! Crucify him!" This is coming to be one of the best known of modern paintings. Ciseri had an innate sense of beauty of pose and of grace of line.

device is chiaroscuro (*kyä″rŏ skōō′ rō*). And so when standing before a painting we should carefully examine the lighting effects as contrived by the artist. It will be found that the significance of the picture is greatly modified by the use of the lights and shadows. Nor should it be understood that shadows in this sense mean patches of absolute black, for even the shadows of a painting in the hands of a skilled artist become luminous and full of color.

Rembrandt's *Woman Taken in Adultery* is a striking example of the powerful effect of chiaroscuro. Here the dramatic effect of the group around Christ is heightened to a wonderful degree by the gloom of the synagogue background with its deep shadows, while the figures in the foreground are brought into striking relief by the weird light which breaks on them from above.

Other great masters of the use of light and shade were Tintoretto, Correggio, Rubens and all the Venetian and Flemish painters. According to Reynolds, the later Venetians evolved an art canon which allowed only one quarter of the picture for light, including both principal and secondary lights, another quarter to be kept as dark as possible and the remainder in half shadow. There were, of course, some variations to this rule. Rubens admitted more light than a quarter, but Rembrandt much less. Reynolds made an enthusiastic study of chiaro-

scuro in the work of the great masters, and declared that by its means even the most commonplace objects could be rendered into pictures of great charm and beauty.

COMPOSITION

After the details of technique of a picture have been studied, after we have satisfied ourselves as to its drawing, color and light and shade, we should direct our attention to the disposition of the different parts. We should ask ourselves if the grouping of the various units seems balanced and harmonious. The artist should possess a sense of decorative proportion, of unity and balance. A picture should possess unity of action. There should be only one center of interest, one principal figure or group. Even the picture of a single sitter may be ill composed. Does it crowd the frame? Does it appear too far on one side or the other? Then the composition is at fault.

Of course it is much more difficult to give unity to a crowded scene, and yet this is done by the arrangement of the figures and their attitudes. Rubens has achieved this wonderfully in *The Lion Hunt,* where the scene gives an impression of wild disorder, of horses, men and beasts hopelessly entangled. This impression, of course, the artist deliberately sought to create, and yet the eye is satisfied that there is perfect harmony in this picture.

Another picture illustrating admirably this point is *The Carpenter Shop,* by Millais. In this group, which represents the Christ Child just after His hand has been hurt, we seem to feel that each figure is in its most natural position, and yet a little closer study shows how carefully the artist must have directed his attention to the composing of this group. A good way to test the composition of a picture is to try to imagine one of the figures in a different position.

In many pictures it will be found that the composition can be enclosed in a triangle or pyramid or some other simple geometrical figure. The pyramidal form of composition has been exceedingly popular. In fact, for a time this custom became almost a canon of art in Italy.

TREATMENT

Our next consideration of a picture's qualities should have to do with the manner in which the subject has been treated by the artists. No two artists will see the same subject alike. Even in the so-called exact sciences, allowance is made for what is termed the "personal equation," and the classical illustration of this principle is the variation between the timing of an eclipse by two astronomers under identical conditions. Observation has shown that even the same landscape sketched from exactly the same vantage point by different artists will take on different aspects. This discussion of treatment is bound up with a number of terms, such as realism, idealism, classicism, naturalism and impressionism, which are convenient terms to express certain broad tendencies or points of view.

It should be borne in mind that the aim of the artist is not to imitate nature. It is true that he uses natural objects to serve as models and he endeavors to make his work resemble nature, but there the imitation ends.

The true artist does not seek to report every detail of the scene before him. He aims to give an impression, to generalize, to bring out only the significant features of a scene. Idealism has been defined as the "free, poetical interpretation of nature even at the sacrifice of literal truth." Indeed, the representation of naked truth is never the sole end of art. The idealist sees into the meaning and soul of things and records his vision. This is art.

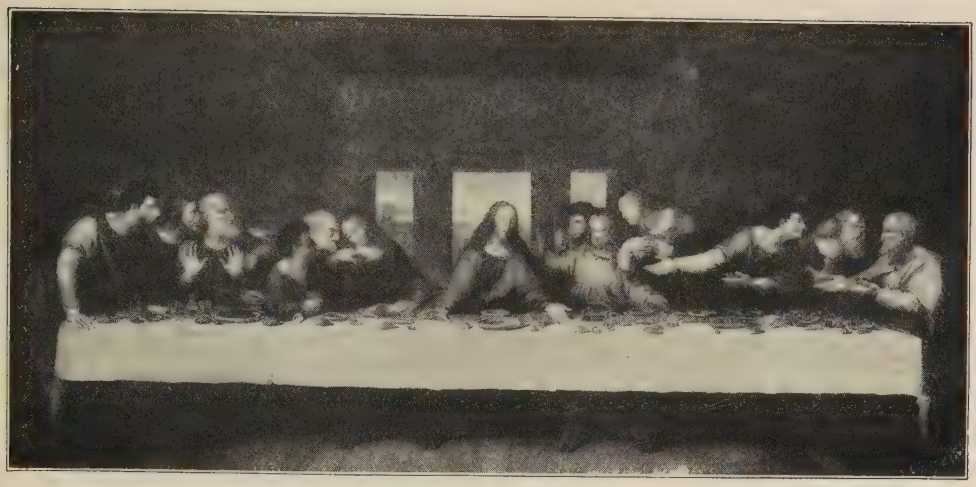
The impressionist may be said to be the artist who aims at still broader effects than the idealist. He has a greater contempt for details. The realist treats his subject minutely and with elaborate detail. He makes an accurate report of everything he sees in a scene. This form of art is scorned by nearly all the great masters, and Rembrandt's remark to a woman who was looking too closely at

one of his paintings, "Pictures are intended to be looked at, not smelled," epitomizes their attitude toward those who demand microscopic attention to detail.

For further study of this subject the reader is referred to the subjects listed under the heading *Art* in the Topical Index.

LANDSCAPE—*Corot*

The rendering of landscape has advanced to a wonderful stage of perfection, and much of the progress is due to the work of Corot (page 715). In this example of Corot's art, the student should consider the manner of rendering trees, of light seen through the trees, of perspective, and the poetic quality, or tone, of the picture.



THE LAST SUPPER—*Leonardo da Vinci*

Any appreciation of Leonardo da Vinci's (page 3028) greatest work, *The Last Supper,* must take into consideration the purpose for which the picture was made. Executed for the monks of the convent Church of Sta Maria delle Grazie at Milan, this magnificent composition was painted on the end wall of a spacious refectory, where, as they sat at meals, the monks could see the long table of the picture, forming, as it seemed, part of the room itself, and, like the high table in a college hall, slightly raised above the rest. It was obviously convenient for this purpose to range the apostles on the far side of the table, facing the room, with Christ in the middle; and to vary this long line the painter has broken it into four groups, uniting them, however, with consummate skill through the expressive action of the hands.

In order fully to appreciate this masterpiece, we must also know something of the life of Leonardo da Vinci, who was equally great as a scientist and an artist. Although this picture has undergone through the centuries cruel injury from vandalism, neglect and atmospheric conditions, it has been in part restored through painstaking efforts, and is now on exhibition in the same chapel in Milan, though much faded. Leonardo devoted four years to this work. He painted it in *tempera* (page 2140) instead of oil, although for a long time it was thought oil was used.

The names of those in the group, reading from left to right, are: Bartholomew, James the Lesser, Andrew, Judas, Peter, John, Christ, Thomas, James the Greater, Phillip, Matthew, Thaddeus, Simon.

Judas is easily distinguished by reason of his grasping a bag of money and his having tipped over the salt in his excitement. The moment chosen by the artist is just after Christ has uttered the words, "One of you shall betray me."

Leonardo's *The Last Supper* has become for all Christendom the typical representation of the scene. The chamber is seen in a perfectly symmetrical perspective, its rear wall pierced by three plain openings which admit the sense of quiet distance and mystery from the open landscape beyond; by the central of these openings, which is the widest of the three, the head and shoulders of Christ are framed in.

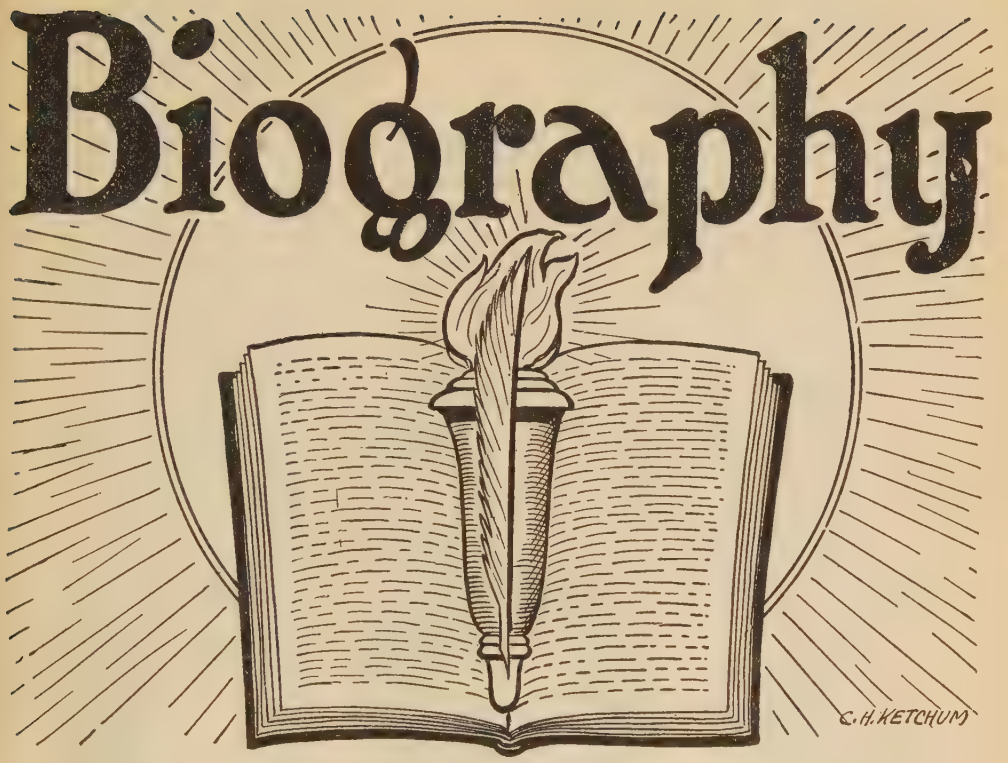
Leonardo in this picture used all his acquired science of linear and aerial perspective to create an almost complete illusion to the eye, but an illusion which has in it nothing trivial, and heightening our sense of the material reality of the scene only heightens its profound spiritual impressiveness and gravity.

Da Vinci was a profound student of psychology, and the knowledge he gained thereby is marvelously revealed in his handling of the different figures in this group.

When Napoleon visited Milan on one of his military campaigns, he stabled his horses in the sanctuary of this masterpiece, and finding the customary means of ingress and egress inconvenient, ordered a doorway cut through the wall on which the *The Last Supper* was painted.

THE SONG OF THE LARK—*Breton*

The most popular picture in the Chicago Art Institute is the work of a modern French artist, Jules Breton (page 379). The drawing and perspective of this picture are perfect. It is an ideal picture of peasant life. A beautiful young girl, her scythe in her hand, is startled from her work to listen to the song of the lark, and, apparently, joins him in his trill. The figure is admirably placed on the canvas. This canvas, of an exquisite sentiment, is also full of force in the tone and the values; the pose of the figure is simple and grand without the least playfulness.



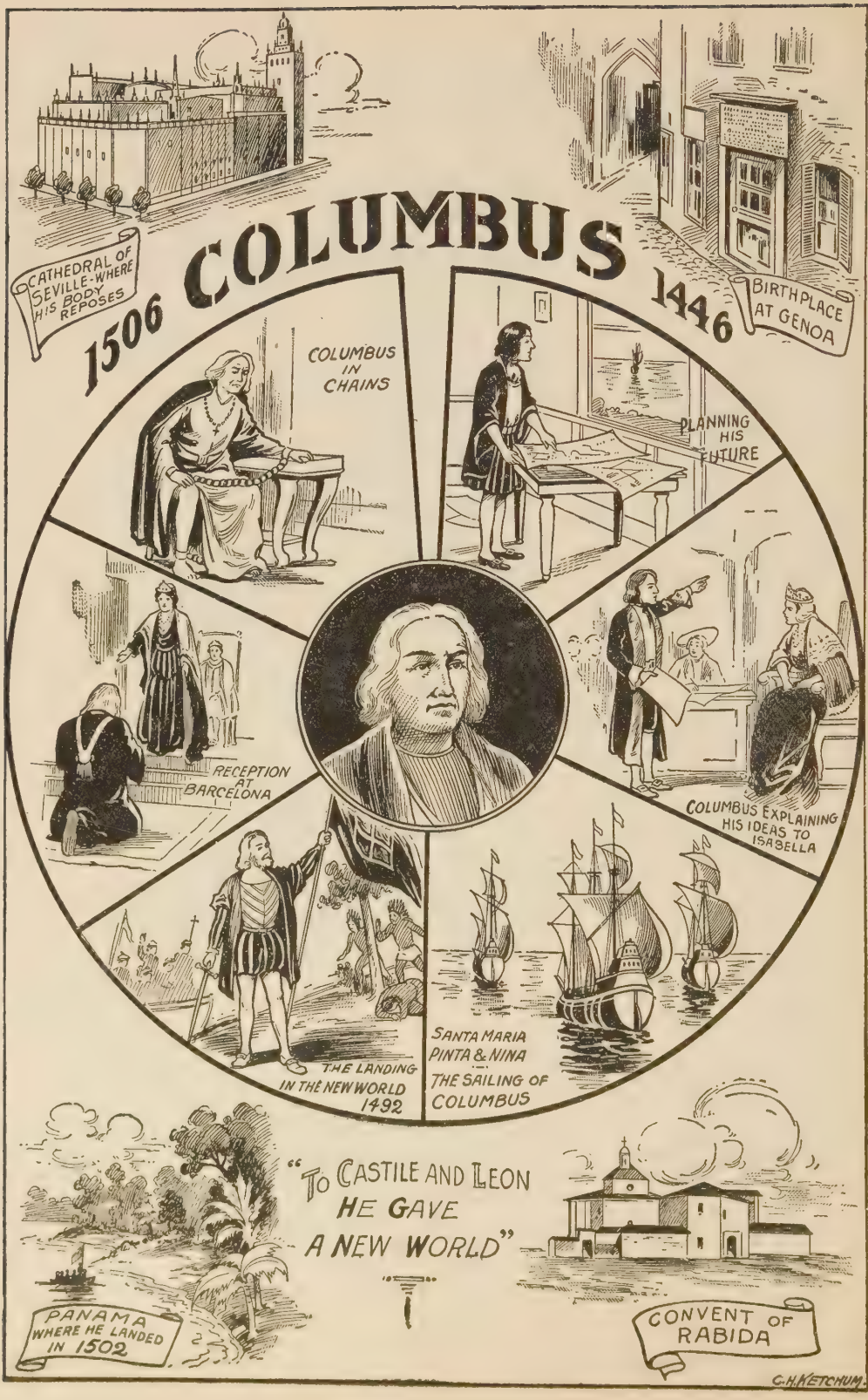
Biography is that department of literature that is concerned with the history of individuals,—men and women who became prominent in many ways,—some as generals, some as statesmen; others as scholars, or eminent as writers. The value of biography as a study is many sided. In the first place, we naturally wish to know about prominent actors in our national history; there is, further, a lesson to be learned from the life of any prominent man or woman which we can apply in many ways to ourselves. In some way they all made a success in life. They must have displayed certain traits of character or pursued a certain course of action that enabled them to make their life a notable one.

How to Study Biography

The better way is to study the life of and become mentally acquainted with the one we are studying. In the case of children we should assist them to visualize the life as a whole. There are certain great lessons that every important life emphasizes. They disclose the elements of great careers. Impressed on memory they paint the foreground of worthy ideals that lure the youthful seeker on. Many a worthy career dates from the attractive force of an ideal formed as the result of biographical reading.

Examples to Study

To illustrate our method, we have prepared graphic representations of the lives of three prominent men—Columbus, Washington and Lincoln. And we have explained the lesson to be drawn from each panel—hour—of the life represented. Accepting these suggestions, we can determine the lessons taught in other lives we may choose for study.


1506 COLUMBUS 1446
CATHEDRAL OF SEVILLE-WHERE HIS BODY REPOSES
BIRTHPLACE AT GENOA
COLUMBUS IN CHAINS
PLANNING HIS FUTURE
RECEPTION AT BARCELONA
COLUMBUS EXPLAINING HIS IDEAS TO ISABELLA
THE LANDING IN THE NEW WORLD 1492
SANTA MARIA PINTA & NINA
THE SAILING OF COLUMBUS
"TO CASTILE AND LEON HE GAVE A NEW WORLD"
PANAMA WHERE HE LANDED IN 1502
CONVENT OF RABIDA
C.H. KETCHUM.

We gain new courage and resolve from the study of the lives of great men. What lesson can we learn from the life of Christopher Columbus that will aid us to win success?

To assist in answering this question, we have arranged as on a dial plate marking important hours of his life-stirring incidents in his history.

As a boy, while engaged in drawing maps and charts, he studied the mysterious sea. We notice him thus engaged in the first section—let us say the first hour of his life. Everything in the history of Columbus shows that he had one great purpose in life, and did not allow himself to be turned from it. To accomplish anything worthy we must form some high resolve, and strive in every way to realize the same.

Another most important hour in his life was when he stood before Isabella to explain his plans. We must believe in ourselves, in our ideals, and not be afraid to express our faith in them. Success will come if our plans are worthy. It was so in the case of Columbus.

In the lower sections—hours of his life—are represented Columbus on his first voyage and his landing on Watling Island. We can learn from these incidents that final success is often endangered when it is almost won. Few would have withstood the entreaties of his crew to abandon the attempt, shortly before the moving light on shore showed that land was near.

The next important incident in his life was when he bowed in acknowledgment of his splendid reception by the court of Spain on his return. He had succeeded. A new world had been discovered.

The last pictured incident represents the closing hours of life. He was returning to Spain in chains. These were immediately taken off when he landed, yet his life from this time on was sad. This is often the case in the lives of great men.

The Great Work Columbus Accomplished

Let us note the wonderful work that Columbus accomplished. It was much more than simply finding land to the west of the Atlantic. His discovery proved such a stimulus to the mental world of his day that advance in all directions became very rapid. Old theories were abandoned and the modern age began. Civilization has made greater advance since the discovery of America than for thousands of years preceding that event. Columbus himself never realized that his discovery was a wonderful event. This, too, is true of the result of the labors of many earnest workers. If you form some high resolve, carry it through to success; very often the value of the work will not become apparent for many years.

Questions

1. What reason had Columbus for believing he would find land to the west of the Atlantic?

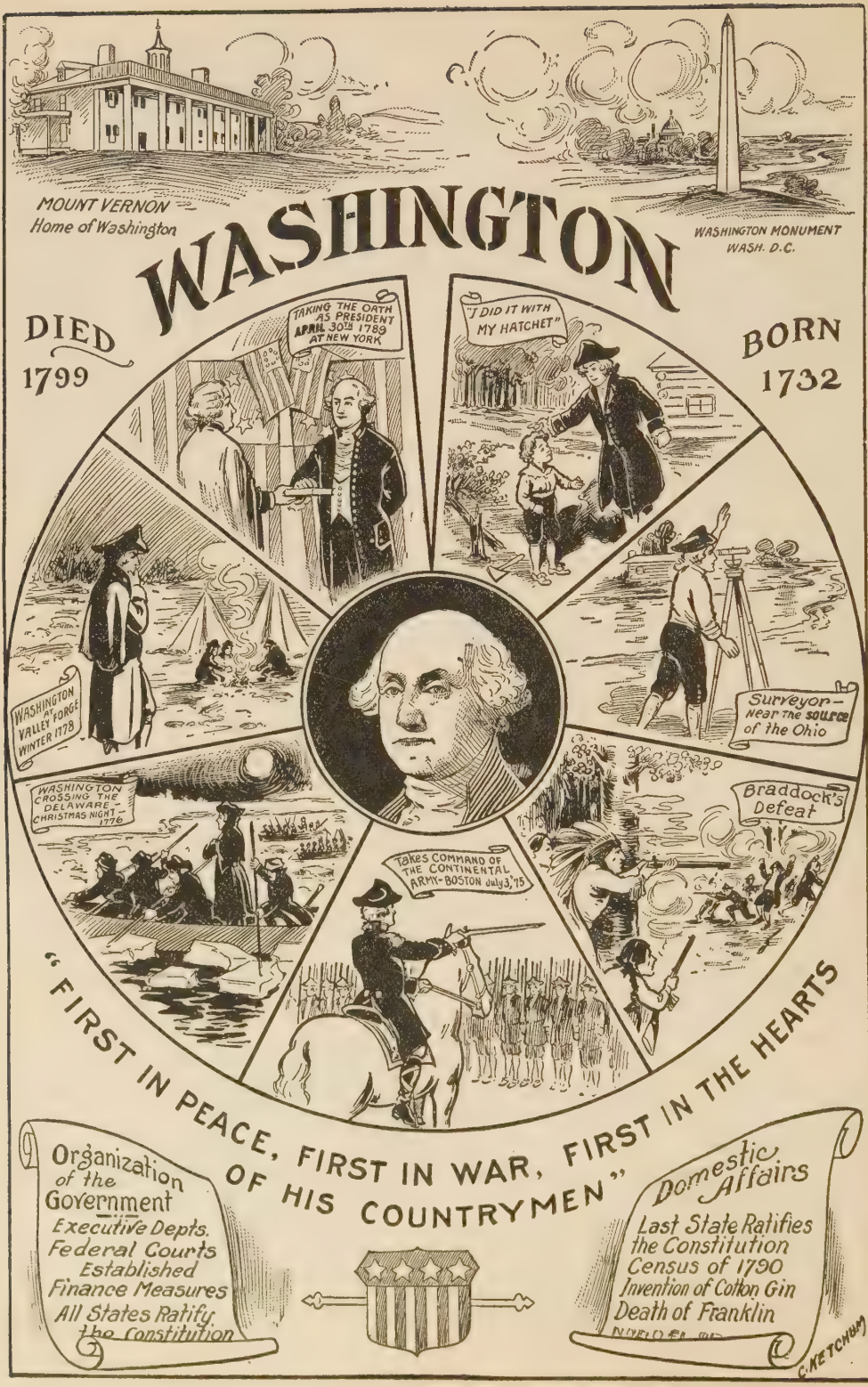
2. To what sovereign besides Isabella did Columbus apply for help?

3. Did Columbus ever land on territory that now belongs to the United States?

4. How does the achievement of Columbus compare with that of other explorers?

5. Why was not this continent named Columbus or Columbia in honor of Columbus?

6. Do you know of any nation named in his honor? Is there any city in your state named in his honor? Do you know of any river named in his honor?


MOUNT VERNON
Home of Washington
WASHINGTON MONUMENT
WASH. D.C.
WASHINGTON
DIED
1799
BORN
1732
TAKING THE OATH AS PRESIDENT APRIL 30TH 1789 AT NEW YORK
"I DID IT WITH MY HATCHET"
WASHINGTON AT VALLEY FORGE WINTER 1778
Surveyor — Near the source of the Ohio
WASHINGTON CROSSING THE DELAWARE — CHRISTMAS NIGHT — 1776
Braddock's Defeat
TAKES COMMAND OF THE CONTINENTAL ARMY — BOSTON July 3, '75
"FIRST IN PEACE, FIRST IN WAR, FIRST IN THE HEARTS OF HIS COUNTRYMEN"
Organization of the Government
Executive Depts.
Federal Courts Established
Finance Measures
All States Ratify the Constitution
Domestic Affairs
Last State Ratifies the Constitution
Census of 1790
Invention of Cotton Gin
Death of Franklin
C. KETCHUM

GEORGE WASHINGTON

Every boy and every girl can learn from a study of the life of George Washington valuable lessons to help him in life.

The incident we have chosen to represent his early boyhood is the famous account of the cherry tree. Many think it never occurred but the lesson it would convey is expressed in all accounts of his life, namely that as a boy he was actuated by high principles. Such a character is worth everything to a young man.

The second incident represents him, while yet a boy, working as a surveyor. He was known to be able and accurate. This shows us that he made the most of the meagre schooling at his command. At that time there were no schools such as you enjoy. But education depends on the boy or girl more than it does on schools and teachers. Pupils themselves must make the effort. From Washington's life we gather that a good education was the first step in his glorious career. All should realize how much depends on a good education.

A third striking incident—representing the opening hours of his manhood—is the terrible defeat of General Braddock. Had it not been for the coolness and bravery of General Washington that defeat would have been ended in a massacre. We are often faced with some great crisis. Perhaps some terrible danger threatens us. The only way is to meet it with bravery. To give way to despair is, perhaps, to lose all. Let us, like Washington, meet such crisis with calm courage.

Then on the pictured dial of his life, let us say at the noon hour, we note a most important event. He assumed command of the continental army, at Boston. All accounts of his life show that General Washington fulfilled every trust imposed on him with wisdom and ability. He accepted this difficult commission only at the urgent request of congress.

Washington's life illustrates what is true in the lives of all; difficult trials accompanied with grave dangers must be met. We have two such incidents represented in the graphic outline of the life of Washington. They were the sad hours of his life. We note him triumphing over one at the "Crossing of the Delaware," and meeting with calmness another at Valley Forge.

The reward of a life of devotion to duty, a sincere effort to live a life of high character are shown in the final event that we have chosen; his inaugural as the first president of the United States. But few can ever be president of our country; all can, however, win true success, which does not necessarily mean wealth or fame. Such a result, however, is not possible unless, like Washington, boys and girls try to act nobly, to fit themselves for their life work by a suitable education, and then to do their duty as they see it.

The Value of His Work

It is impossible to put too high an estimate on the value of the work General Washington was able to accomplish for our country. Others have done much to save our country when it was confronted with grave danger; but the existence of the United States as a nation is a result of the unselfish patriotism of General Washington. From the graphic representations of his life, notice that every incident portrayed—every hour on the dial of his life—was leading to the final scene of triumphant success.

Questions

1. What age was General Washington when he died?
2. How do you think his work compares with that of Lincoln's?
3. What is the difference in the relations of England, France and the United States of to-day, and the relations of the same nations in the Revolutionary War?
4. What city is named in his honor? What state is named in his honor? Is there any city in your state named in his honor?

LINCOLN MONUMENT
Springfield
Illinois
BIRTH PLACE
OF LINCOLN
1865 LINCOLN 1809
INAUGURATED
PRESIDENT
MARCH 4
1861
STUDYING
BEFORE THE
FIRE
THE
LINCOLN-DOUGLAS
DEBATE
FLOATING DOWN
TO
NEW ORLEANS
A MEMBER
OF THE
LEGISLATURE
1840.
THE
RAIL
SPLITTER
"GOVERNMENT OF THE
PEOPLE, BY THE PEOPLE,
FOR THE PEOPLE,
SHALL NOT PERISH
FROM THE EARTH"
THE WHITE HOUSE
LINCOLN'S HOME
IN SPRINGFIELD
C.H. KETCHUM.

We notice the rude cabin in which Abraham Lincoln was born; we also notice the representation of the White House where he died. On the dial plate of his life are represented six typical incidents of his life—six important hours—indicating successive steps in his progress from the cabin to the executive mansion.

The first incident represents Abraham Lincoln studying before the fireplace in his early home. How true it is that great men are eager for an education. They realize that an education is the first step to success.

The next incident is his voyage on a flat boat to New Orleans. He is reading a book. Book education is only a part of our real education. Who knows but the scenes and incidents he saw on that voyage shaped his life and came to a fruition in 1863? Let all strive for the practical education to be gained from a study of incidents in real life, which should supplement the education of the school.

Great men and women do not wait for great opportunities, but faithfully attend to whatever is theirs to do. In Lincoln's case this was splitting rails, represented in the third scene—hour—of his life. You should learn that nothing is small or unimportant, it is the spirit with which you labor that ennobles your work. If you do well whatever you have to do, you probably will be called to do great things.

These three incidents portray his early struggles, the forenoon hours, let us say, of his life. In the remaining incidents—hours—of his life is represented his gradual ascent to the crowning triumph of his life, the presidency of the United States. When Lincoln was a member of the legislature, no question was ever raised as to his purity of motive.

Still advancing—as the hours of his life passed—we see represented that important event in Lincoln's life—his debate with Senator Douglas. Not without design is this scene placed opposite to his New Orleans trip. When you have formed ideals of right and wrong, you must stand by your convictions; support what appeals to your sense of right regardless of consequences.

In the final scene—his hour of triumph—he is represented taking the oath as president of the United States. His journey from the cabin to the White House was completed. Once more the lesson is impressed on us that success does not depend on birth. In every case, education, perseverance under discouraging circumstances, attention to homely details of every day duties, appear as the price that all must pay who would win success.

The Value of His Work

George Washington laid the foundation of our national structure and made the United States possible: Abraham Lincoln saved the union from dissolution. To-day every patriot rejoices in the result of his work. The work of the one supplements that of the other. Both of these great patriots live in the memory of a grateful country. The lives of both furnish inspiring lessons to help every American boy to make success of his life. Let us profit by their examples.

Questions

1. What points of resemblance do you detect in the lives of Washington and Lincoln?

2. How old was Lincoln when first elected?

3. How did the Nation of Lincoln's time differ from the United States of Washington's time?

4. Was Washington's task in conducting the Revolutionary War more difficult than Lincoln's task in the Civil War?

Plan for the Study of Biography

SIR JOHN ALEXANDER MACDONALD

I. Parentage and Birth

II. Youth and Early Career

1. Removal to Canada
2. Education
   (a) Early schooling
   (b) Study of law
3. Practice of law
   (a) Association with Oliver Mowat and Alexander Campbell
   (b) Connection with the Rebellion of 1837
4. Marriage

III. Early Political Career

1. Resumé of situation in Canada at this period
2. Election to Assembly as a Conservative
   (a) Political views
   (b) Rise to power with his party
3. Appointment to the Draper Cabinet
4. Friendship for the French
5. Formation of Liberal-Conservative Government
   (a) Macdonald's appointment as attorney-general (1854)
   (b) Important measures adopted.
      (1) Abolition of seigneurial tenure
      (2) Secularization of Clergy Reserves
6. Guiding principles of Macdonald's policy
   (a) Maintenance of union with Great Britain
   (b) Tariff for the protection of domestic industries
   (c) Union of the British colonies of North America

IV. Later Public Life

1. The period between 1857 and 1867
   (a) Premier with Cartier
   (b) Premier with Taché
   (c) Important events of the period
   (d) Beginning of Confederation movement
   (e) Macdonald's part in forming the Dominion
      (1) Quebec Conference (1864)
      (2) Drafting of the British North America Act (1866)
   (f) Created Knight Commander of the Bath (1867)
2. As First Premier of the new Dominion
   (a) Organization and expansion of the Dominion
   (b) Treaty of Washington (1871)
   (c) The "Pacific Scandal" and Macdonald's defeat in 1873
3. Macdonald's protection policy
4. Reelection in 1878
   (a) Completion of the Canadian - Pacific Railway
   (b) The Saskatchewan Rebellion
   (c) The Electoral Franchise Bill

V. Death in 1891 While Still in Office

VI. Sir John Macdonald as a Man

1. Physical appearance
2. Character and personality

OUTLINE FOR STUDY OF THOMAS ALVA EDISON (P. 899)

Birth

Born at Milan, Ohio, February 11, 1847. An only child.

Parents

Father, Samuel Edison; mother, Nancy Elliott. By birth, both parents Canadians. Circumstances moderate. Moved to Port Huron, Michigan, when Thomas was seven years of age.

Education

Almost wholly home training. His mother being a well known teacher. He received a good common school education.

Childhood Characteristics

Noted for his love of reading, intense curiosity concerning phenomena, and a thirst for knowledge. Fondness for experiments of all kinds. Active in mind and body.

First Employment

Newsboy on the Grand Trunk Railroad between Port Huron and Detroit at the age of twelve. Continued in this work four years. Noted for ability as a salesman, for precocious talents and initiative ability.

Telegraph Operator

First office at Stratford, Ontario. Constantly making small inventions to save time and trouble. Of a very roving disposition. Took out his first patent in 1869, made many others and scored his first success when the Gold and Stock Telegraph Company purchased his inventions for $40,000. Date 1869.

Marriage

Mary E. Stilwell, in 1873. Had three children. Wife died in 1884. Married Nina Miller in 1886. Three children.

Manhood Characteristics

Extraordinary ability for hard work, working about twenty hours a day, often day and night. Wonderful patience as an experimenter. Great powers of observation and reflection. Very fond of chemical and electrical research. His first laboratory located at Menlo Park, New Jersey. Now at Orange, New Jersey.

Inventions

Some of his greatest inventions are the Duplex and Quadruplex telegraph instruments; the Edison telephone receiver, the electro-motograph, the Phonograph, the Incandescent Lamp, the Cinematograph (moving picture). (See P. 2841, 2845, 2247, 927, 1932.)

Results

Mr. Edison has made about 1500 inventions, built up a vast business and is the central figure in the world of practical inventions whose work is to advance the happiness and prosperity of mankind.

OUTLINE FOR STUDY OF HENRY W. LONGFELLOW (P. 1641)

Birth

Born at Portland, Maine, February 27, 1807; died March 24, 1882. The second son of Stephen and Tilpah Longfellow.

Education

Attended private school, then the Portland Academy, entered Bowdoin College in 1821, graduated in 1825.

Boyhood Talents

First poem a composition on a turnip, written when he was nine years old. First published poem when he was attending the academy. His poem "Thanksgiving" written when he was seventeen years of age.

Law Student

Began study of law in his father's of-

fice in 1825. Abandoned after six months to take up a Literary Career.

First European Trip

From 1826 to 1829. The time was spent in travels in France, Spain, Italy, Germany, and Holland. He also took a course of study in the University of Gottingen. He took many extensive notes. In 1835, these notes were made the basis of a collection of travel sketches known as Outre-Mer. He studied poetry and history and prepared for his work as Professor of Modern Language and Literature at Bowdoin.

Professor at Bowdoin from 1829 to 1834

Wrote a series of articles for the North American Review on European Literature.

Marriage

His first wife was Mary Storer Potter of Portland, Maine. Died at Rotterdam, Holland, 1835.

Professor at Harvard

From 1836 to 1854, Professor of Modern Language and Literature at Harvard. During this period most of his poems were written; also some prose volumes, and numerous articles for reviews.

Second Marriage

His second wife was Miss Frances Elizabeth Appleton, whom he married in 1843. She died in 1861 (burned to death), leaving five children, two sons and three daughters.

His Works

Among his works are Evangeline, The Song of Hiawatha, The Courtship of Miles Standish, Dante's Divine Commedia, Ultima Thule, and several volumes of miscellaneous poems. (See P. 1692.)

Estimate of His Writings

"In the pure, amiable, home-like qualities that reach the heart and captivate the ear, no person can place Longfellow second. . . He taught the whole people, he chastened all minds, lifting even the blacksmith at the forge, the woodman on the frontier, as well as the student in his laboratory. . . He looked upon life as an earnest reality, an arena of contest, and it was his constant aim to breathe energy into fainting hearts, to sustain lagging purposes, and to fix the reader's thought upon what is stable and eternal."

Professor Everett of Harvard.

Death

March 24, 1882, at Cambridge, Massachusetts.

PLANS FOR STUDY OF BIOGRAPHY

Commencing on page XIII of Topical Index for this ten volume Reference Work, we give a classified list of men and women who have achieved prominence in some field of activity. Details of their life can be found under their names in the reference volumes of this new Reference Work. Those wishing to make a careful study of any particular personage will find helpful suggestions in the foregoing outlines. To test your knowledge on biographical details make a study of questions pertaining to this subject in the Question Department.

(See pages 4568 and 4569.)

Music in any agreeable combination of tones heard in orderly sequence; but what is agreeable depends on the stage of enlightenment reached, or the degree to which higher faculties have been developed. This explains why different nations and races have different musical ideals; what pleases savages is discord to civilized men.

Music in Education

The end of education is to enable the individual to express the faculties with which he is born. We are given mathematical faculties; to properly express them we need to study arithmetic, algebra, and other branches. We are given a higher psychic or soul nature that responds to the highest, truest, most beautiful in life. Music is one of the principal means through which the higher nature is expressed.

The Need of the Present

In response to the urgent needs of the present has come a general recognition of the importance of music, and methods of training in the art are now generally applied in homes and schools. We need as never before breadth of vision; our thoughts must embrace the world, our plans must be concerned with higher things. Only in that way can we measure up to the coming needs, for a new age is at hand. To modulate our thoughts to higher things is the mission of music in education.

All Need This Help

Music trains the will; it educates the sense of hearing and of sight; cultivates the voice; aids in the study of language; quickens the memory; trains in habits of accuracy, of instant decision, and of concentration.

More important still, it brings an appreciation of the beautiful, the love of which is a part of human nature. It adds vastly to the capacity for the higher life and makes that life worth living.

It enlarges the imagination and stimulates the creative and inventive powers; appealing to the emotions, it cultivates the spirit, the soul of man, and those powers that dominate the motives and direct the will.

We all need the increased sunshine, the reviving breath of inspiration that even a slight knowledge of music affords. The despairing and the careworn regain hope and vigor under its influence and every reformer knows the power of music to sway the hearts of multitudes and attune them to higher things.

Our Ideal

We believe it is our duty to help each other find the source of beauty and power in life. We have prepared some suggestions on teaching music in the homes and schools of our land, trusting that they will prove a help also to those striving forward by their own exertions. We can do but little more than chart the beginning of a course, but those who profit by it will see outlining before them an ideal that will advance as they proceed, and will lure them on, not only to a more complete knowledge of music, but to a more complete life.

The Beginning

Musical education begins on the mother's knee. In an earlier article (Before School Life Begins) we saw how important were the lullaby songs of mother in awakening the mind of the little child. Mothers should prepare for that work and sing and play with their children through baby-land. Like all first steps this is of vast importance, for the mind is plastic and impressions thus formed endure through life. Soon the mother may have the co-operation of the kindergarten in her work; but every step is still to the accompaniment of song. Any attempt to teach even the rudiments of music in these early years is out of place. They are to learn through singing, and this is nature's way, for with only the briefest hints little folks as naturally take to singing as birds break into song when day comes.

Preparation for Work

In order to help intelligently in this work, one must be prepared to teach many simple rote songs. We use the word "prepare" purposely, for while the songs need to be simple, they must be sung in good time and harmony. The songs selected should have for their theme things familiar to childhood, such as Mother Goose songs for the smaller children, and other songs that have distinct value in melody and harmony. Modern tendency is in the direction of simplicity and brevity.

In teaching rote songs sing the first stanza, acting out the simple movements if such be required. Then the children join in the singing. Only a few repetitions will be required to memorize the song. But remember their years and do not weary them; at the first sign of fatigue, set them to singing something they already know and postpone further exercise on the new song.

Objects Sought

Important ends are sought without so much as a suggestion to the little ones on the part of the mothers or teachers. They are aiming to secure soft voices and the employment of good tones. A sense of rhythm and harmony presses itself on the consciousness of the children but they do not know it by that name. They are being trained also in distinctness of utterance and proper breathing. If there be several in a class, by a skillful assignment of parts timid ones acquire a sense of confidence in their ability to sing alone. These aims are to be kept in mind, and we must not lose sight of their importance. We are warned that the first few years are the most impor-

tant, for then is laid the foundation on which further progress is to rest.

Formal Drill

Ths stage of preliminary work soon passes and a period of more formal drill begins. Rote singing still remains of great importance. The golden text of musical education in childhood is,—children are to hear and imitate good music. They are first to learn by doing, then principles are to be explained in language they can understand. Thus by easy natural steps they reach the goal desired in present day methods; which is that pupils shall be able to read ordinary music with ease and be so trained in ear and voice as to be able to render the same with effect. Further they are to be trained to an appreciation of music. This instruction is given, not for the purpose of making them musical experts, but to open to them the treasures of music and thus enrich their entire life. This is a part of education that we owe children. We must not let them go through life with the most beautiful faculty of their soul untrained.

This work is not difficult, if it be not neglected in childhood. The kindergarten work pieces on to the mother's lullaby songs; the school work follows naturally, and just as a flower unfolds so does the love of music, innate in all children, flower out into ability to do, capacity to appreciate and intuition to read messages from afar.

Love of the Work

This is a work of love on the part of mothers and all teachers that have caught the vision. They are starting little feet on the road that leads straight to the heights where there is tonic in the air and all the cares and petty troubles of life become like clouds touched by the sun. All through after years they can in music rise above the cramping limitations of their conditions,—see clearer, think more strongly, plan wiser and with new courage and confidence resume their work. In what other way can a teacher exert such an influence of good?

The Scale

The scale is first taught by means of a rote song. In developing the scale, various means may be employed, descending and ascending to any group of words that are smooth and euphonious. Then introduce simple syllables, as loo, lo, mo, pro, etc. After that, introduce the regular syllables do, ti, la, sol, fa, me, re, do. Explain that these are the singing names of the tones they have been singing. But this lesson in its fullness extends over many days, and requires much practice. It is brought in in an incidental way, so to speak. In practicing the scale, it should be given only as rapidly as is consistent with perfect intonation; speed will increase with practice. The voices should always be lightly used, the head quality with perfect articulation is desired.

Practice Work

As soon as the scale has been learned by rote, the pupils are told that sequence of tones is called the scale, and that it constitutes the first step in the formal understanding of music and will help them to understand the songs they have been singing; but just as they had to do a great deal of primer work when they were learning to read, so it will be necessary to do a great deal of practice work in connection with the scale. So from day to day dictation work continues. The teacher says, "Sing the scale down and up." Children answer by singing with syllables, the pitch being given by the teacher using the pitch pipe if they have one. They may also be asked to sing the scale with the syllables lo, pro, or others. The teacher by proper gestures indicates the rapidity with which the scale is to be sung, the children being taught to observe and follow her direction. This practice must be diatonic, down and up as rapidly as is consistent with correctness of pitch and distinctness of utterance.

The Column of Figures

The Director of Music in New York City Schools suggests that during these exercises the first representation should be placed on the board. He recommends simply a column of figures, thus:

8
7
6
5
4
3
2
1

The teacher points at these figures in their order; the children singing and learning to associate these numbers with the tones of the scale. The children will soon perceive that Do is 1 and 8, Re is 2, etc.

The Scale Sung to Different Pitches

There is a point that the teachers must bring out in their singing and emphasize in this scale practice without saying very much about it. Vary the pitch on which the scale is to be sung, since it is not at all necessary for it to commence on middle C. The pupils are to regard the scale as simply eight successive steps, ascending from one tone to another twice the pitch, but do not stop to explain about the octaves in preliminary work. Illustrate by singing a well known simple song on different keys. At present simply give different keys by aid of the pitch pipe when calling for the scale.

Ear Training

Ear training must be attended to at the same time. The teacher should sing tones or a series of them, using a simple vowel or syllable as loo, lo, etc., in the key of C. The children are to give the numerals of the tones or respond by singing the tone syllables. Or the teacher may sing a diatonic series, omitting one or more scale tones. The pupil is to tell the proper name of the tones omitted. Thus this series of exercises on the scale tones, as represented by the column of figures, is continued until the children are able to sing the scale with rapidity, using either syllables or vowels; to pause on any given syllable; to pause and turn back; to sing intervals; or to sing on different keys. In all this work be careful not to weary the children; employ much of rote singing.

Drill and Practice

The same eminent authority to whom we have referred makes the further suggestions that the way is now open for extensive drill and dictation work before explaining scale notation. The numerals are always used in speaking, syllables in singing. Thus the teacher says, "Sing 1, 2, 3." The children sing from given pitch, "Do, Re, Mi." A variation is for the teacher to direct that they sing 1, 2, 3, with loo, or lo, or some simple vowel sound. A great deal of practice along these lines is given, and then intervals are called for, but these are to be sung at first by singing the steps contained in them. Thus, if the interval 1-4 is called for, at first the steps 1, 2, 3, 4 are sung and then 1, 4, with intervening steps omitted. After some practice the interval can be sung without the intervening steps.

The Nature of Musical Tone

During these exercises the attention of the pupils has been called to the nature of musical tones and necessary terms have been explained. Tones have pitch, —high or low; they have intensity,—loud or soft; they have duration,—long or short, and their relative lengths may be measured; they have quality,—sweet, harsh, etc. Illustrate these different qualities and let them become familiar to the pupils. The importance of all this work becomes evident as we proceed. In pitch the pupils must become thoroughly aware that they have been singing the scale, starting on different pitches given from the scale pipe. It is not necessary to explain farther at this point. Make use of rote songs that illustrate pitch and tones.

The Staff

During the foregoing exercises the staff without any signature is brought in. The teacher introduces the subject in some natural way, perhaps as follows: "You have sung 1, 2, 3, etc., as I have called for them. But I might wish to write down some words and have you sing them a certain way without telling you what tones to use. People who compose beautiful songs wish such a result and they have arranged a series of lines and spaces with certain signs in connection with them by the aid of which those who understand the arrangement can sing the song in the way the author desired."

Illustration

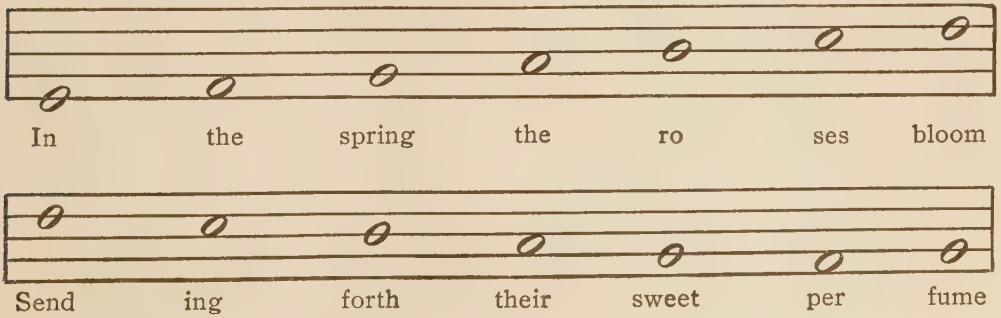
Let us select a simple couplet like the following:

In the spring the ro-ses bloom,
Sending forth their sweet per-fume.

We wish to write it so that others that have had this drill will know how we wish it sung. We might arrange it this way:

1 2 3 4 5 6 7
In the spring the ro - ses bloom,
7 6 5 4 3 2 3
Send - ing forth their sweet per - fume.

But that looks clumsy and in addition we will soon discover we wish to express other directions as well and we must provide for them. Let us try the following:



(The teacher is to sing this in the key of G.)

Explanation

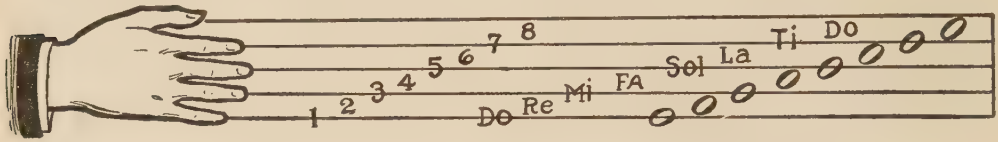
We have drawn five lines enclosing four spaces. If we were to assign a number to each line and space, beginning at the bottom, we would have room for the 8 figure names of the tones, and one line to spare, but the fact is the lines have fixed names, which we will soon learn, and each line and space represents a certain pitch in an ascending scale. We have been singing these exercises—as you know—starting with 1 on different pitches. Hereafter we will simply indicate in some way on what line or space 1, or Do, is to be placed. In this exercise it is placed on the first line, and we indicate it by a mark. You can see how the other numbers are arranged. This mark you may call a note and the combination of lines and spaces a staff.

Pupil's Drill

At this point, also, a great deal of drill is necessary. The point to be thoroughly understood is that each line or space stands for a tone. After locating 1 or 8, point to the related lines and spaces and have the pupils sing the appropriate syllables, do, re, etc. The location of 1(8) should be frequently changed so that it will be clearly recognized that the first principle in reading from the staff is to estimate the distance from one tone to another, measured by the number of staff degrees. By changing the position of 1 it is seen that all keys or positions of the scale are equally easy.

The Hand Staff

Since a great amount of practice is necessary to establish firmly these principles it is suggested that the hand staff be introduced.



Point with the right hand to the finger or space of the left hand that represents the tone the pupils are to sing. Dictate exercises like the following:

1 2 1 2 3 2 1 2 1 2 3 4 3 2 3 2 1
1 2 3 4 5 4 3 2 1 2 3 2 3 4 3 2 1

In all these exercises frequently return to 1, for the pupils must become conscious whenever 1 is located that the exercise is based on that tone, which becomes the keynote of the exercise.

The Notation

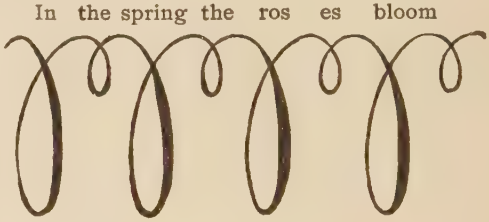
As a matter of fact, from rote singing, remarks dropped by the teacher, and what they have learned of tones in general,—the pupils are familiar with the general fact of rhythm and measure. All the elements that enter into music should be deduced from the songs given, especially if the teacher now and then drops fruitful remarks. But the time is now at hand when the pupils are to be given more formal instruction and discover how these qualities are indicated on the staff. Music lives and moves in the pulsating beat of its rhythm. All through the early years of musical education the natural, instinctive feeling of children for rhythm should be stimulated by suitable movements,—which includes marching, clapping, tapping, and other bodily movements. Songs with strong swing and good rhythm should be sung frequently, and the pulses should be marked by circling or looping motions of the hand and arm.

Illustrations

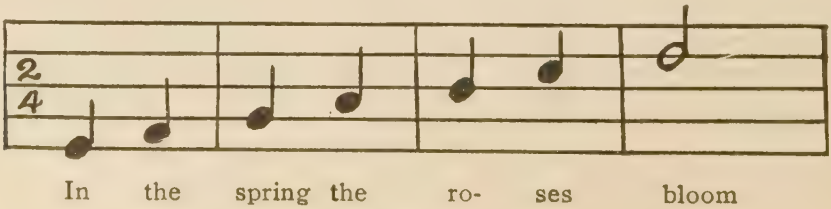
Let us take the first line of the couplet we have already used:

"In the spring the roses bloom."

Now, when we begin to mark that line off in pulses, we see that the last word "bloom" is longer than the others. Let us loop it over.



The teacher now explains somewhat as follows: We have here represented what you know is the fact that in all our singing we have strong and weak syllables; we have definite measures, and one tone may be longer in duration than another. It is necessary to indicate these facts so that other people can see what syllables we desire them to accent, and the relative length of the syllables. We can accomplish all by marks and characters on the staff.



The lines across the staff (up and down) divide the staff into four parts, called measures, and you notice an accented (a strong syllable) immediately follows the bars—as the lines are called; the double bar marks the end. The sign we first used in connection with a staff we learned is called a note. From that character other forms of notes are derived, whose value in relative time to the full note is expressed in a fractional form.

Results

In a similar way pupils are to be made acquainted with the significance of other time signatures and with rests, all principles involved in them having become familiar through rote songs. The pupils have now learned to sing the scale, using all the various pitches; to sing intervals; to sing the scale from the staff (having no pitch signatures) when the position of 1 is made known to them; they understand

1. Whole note = two half notes
1. Half note = two quarter notes
1. Quarter note = two eighth notes
1. Eighth note = two sixteenth notes

Illustrations

For our present purposes we will take the quarter note as the unit of time in our exercises. It will be noticed that we have two of these notes (or rather the time of two of the quarter notes) in each measure and now observe we have indicated that fact at the beginning of the staff by the fraction $\frac{2}{4}$. This is known as the time signature, and in this case means that in each measure we have two quarter notes.

Caution

Constantly remember that in music education the following is the order: empirical knowledge of the thing made familiar in rote singing, the name and explanation, finally the sign or manner of indicating it. To reverse this order and attempt to teach the signs and theoretical learning first is to fail. No amount of memorizing and theory will make a singer. But the method here urged is, first, the practical ability to do, learned by rote singing, then the technical knowledge that will enable pupils to master new pieces by their own efforts. This unlocks for them the treasures of music.

the meaning of time, rhythm, measure, bar, and significance of time signature. The authority to whom we have previously referred suggests that here is ample material to occupy the time of several terms, since a large amount of practice work is needed every step of the way in connection with the acquisition of new rote songs and talks in connection with songs, which must soon be introduced, containing pleasing incidents in the lives of composers,—all intended to lead to an appreciation of music which is an end sought in all musical education.

Staff Signatures

We have now to consider the remaining step necessary in an introductory course. We are to learn the significance of certain marks placed on the staff that indicate the keynote of the exercise and generally some slight changes in the pitch of certain notes of the scale based thereon, known as sharps and flats. It is well to remind the pupils, by way of review, of facts they have learned. They know that in a scale there are eight graduated tones, which have been called for as 1, 2, 3, etc., and they know the singing names of these tones as Do, Re, Mi, etc.; and

they further understand that the pitch with which the scale is sung depends on the line or space on which 1, or Do, is placed.

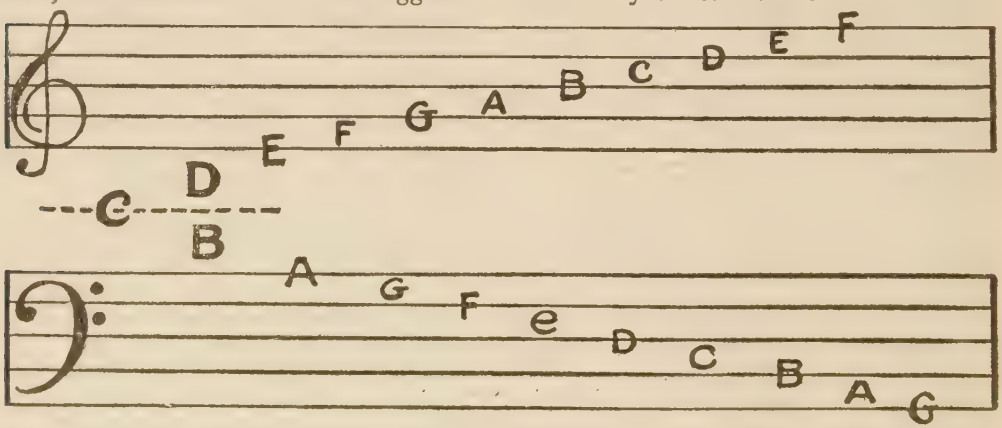
Names of Pitches

Perhaps they have noticed that there are seven of these pitches. We name them after the first seven letters of the alphabet,—A, B, C, D, E, F, G,—and each line and space of the staff is known by its letter name, but it is necessary to explain why the first line (from the bottom) is E instead of A. A suggested method of procedure is along the following lines:

They are aware of the fact that some can sing with ease higher than others, and that men and most boys have to sing notes lower in the scale than women and girls. In other words, voices are divided into classes such as Bass, Tenor, Contralto and Soprano. This is the principal division and all the pupils need to bear in mind in this course. To indicate notes for all of them, we would need a staff about as follows:

The Great Staff

The curved line would indicate the lines and spaces needed to represent the compass of each class in a general way. The thick heavy middle line is Middle C (illustrate from piano or pitch pipe) and the scale which they have practiced most extensively starts from C and is known as the major Diatonic scale; the four grades of voices arrange themselves with reference to that key (Middle C). Such a staff is known as the Great Staff and, as a matter of fact, it has been employed in the past, but it is too complicated for the eye to follow and so it has been modified as above.



This arrangement is familiar to the pupils for they see it in all their song books. The heavy C line is dropped, the two halves of the great staff are separated, and the words of the song are printed in the space between, but since one line (C) and two spaces, D and B, (above and below C) are omitted—the first line of the upper, or treble, staff is E, of the lower, or bass staff, is A. It is at once seen why the other lines and spaces are lettered (named) as they are. But it is often necessary to use notes lower or higher than those represented on either of these staffs, in which case we add lines and spaces. This can be easily seen in most any printed song, and the reason should be made clear.

Pupil's Drill

A great deal of drill is called for at this point thoroughly to familiarize the pupils with the pitch name of the lines and spaces, so that they can tell at once on a treble staff (key of C) what pitch is called for by the location of the notes. This drill, like that on the scale, proceeds with patience from day to day until this matter is thoroughly clear. In the meantime, the cleff signatures for C (without any sharps or flats) is explained.

Cleffs

The two signatures at the commencement of the staffs are known as cleffs (keys). That on the treble staff is known as the G or treble cleff. Notice that it curves around the line G, hence its name. When used alone, it always means that middle C is the key note of the exercise. That placed on the bass staff is the F or Bass Cleff. Notice it curves around the line F. Like the G cleff, when used alone, it indicates the key note is C. In most of the grades, and in this introductory course, it is not necessary to spend much time on the bass staff for, as a matter of fact, the boys sing the treble notes. Whatever sharp or flat signatures are called for by the key note and indicated on the treble staff, are repeated on the bass staff.

Different Pitches

Not all or even the majority of exercises and songs are to be sung on the key of C, and the pupils have had a great deal of drill in singing the scale on different keys. Some rote songs are on one scale, some on another. It is necessary to know what signs are placed on the staff in addition to the cleff signature to indicate keys other than C. All scales are modelled after the diatonic major scale, and in that scale the interval between 3 and 4 and 7 and 8 is only a semitone, not a full note as in the other numbers. When we start with C the notes come in natural order, but if we start one, or "Do," on any other key, it will be necessary to raise the pitch of some notes (or sharp them); or, perhaps, just the reverse, lower the pitch of some (or flat them). All that is necessary in this course is to know this as a fact. The explanation belongs to more advanced work.

Memorizing the Keys

Since to be able to read music readily the pupil must know what key is indicated for the key note, or Do, of the exercise, it is just as well to memorize them at once; so master the following table, after explaining the signs for sharp and flats:

Sharp	Flats
1. Sharp = Key of G	1. Flat = Key of F
2. Sharps = Key of D	2. Flats = Key of B Flat
3. Sharps = Key of A	3. Flats = Key of E Flat
4. Sharps = Key of E	4. Flats = Key of A Flat
5. Sharps = Key of B	5. Flats = Key of D Flat

Songs in their Reader showing these different key signatures should be practiced and the pupils should be able to tell at once when a song is laid before them what is the key note. This table is not at all difficult to learn and there are no mnemonic methods of much help. Attention should be called to the fact that C does not require any sharp or flat.

Further Facts

Further facts in regard to sharps and flats are to be brought out. When the sign of a sharp or a flat is placed on a line or space at the beginning of the staff, all notes of the exercise that are placed on that line or space are to be sharp or flat as the case may be. But if we wish to make an exception in any case, we cancel the sign by the sign known as a natural. In case we wish to sharp or flat a note, and the fact is not otherwise indicated on the staff, the sharp or flat sign (whichever is wanted) is placed before the note. The pupils have already had a great deal of drill. That drill must be resumed, but instead of being told what key to sing it in they gather that fact from the signatures now discussed.

Summary

In this article we have been considering only the fundamental requirements of music in the school. Years of practice with the benefit of expert instruction would be necessary for marked excellence in singing. But the suggestions we have now given, if faithfully followed with persistent practice, will enable one to master ordinary songs. Given this degree of attainment, one has in his possession that which will add much of enjoyment to life.

INFLUENCE OF MUSIC

"Music is the most intimate and personal of the arts, because it deals with the feelings and emotions. Within the heart of the child are lying the germs of good and evil. Of this he is all unconscious, and yet as these develop they will grow into his ideals, his motives, his conduct.

"In music we have a power and a force for the building of fine ideals, and for the awakening of a desire for a good and the true which should be more widely recognized and accepted as a potent means for moral and ethical education.

"Music reaches the heart, the center of the being. It touches the soul. Through its influence the good that lies deep within every one may find itself and express itself. Song may bring to light one's better nature, and thus may regulate and control the actions as one is awakened to nobler effort and to higher aims."

F. R. Rix,
Director of Music in New York Schools.

Nature Rambles and Nature Study are stepping stones to a more intimate study of nature's methods in the two divisions of life forms,—plants and animals. Botany is classified knowledge of plant life. It enables us to better understand some of the deeper lessons that nature has prepared for us in flowers and plants, trees and shrubs.

The Value of Botany

No branch of learning more strongly awakens curiosity, arouses interest and calls for observation, reflection and the exercise of judgment. These are the mental muscles, so to speak, that must be quickened, trained, and set to work, if our boys and girls are to be prepared for the intense life of the future. There is not a wayside flower but has a lesson for us; the more it is studied, the more it lifts thoughts to higher things.

Not a Text Book Study

We have prepared some suggestions, plans and outlines for a study of botany. We can do but little more than to plan a method of work that will assist parents and teachers in guiding the steps of boys and girls just entering this pleasant field of knowledge; also prove of help to pupils seeking self knowledge. But it is not to be a text book study. We will more carefully study the leaves, flowers and fruits that greet us in our walks; notice their points of resemblances and differences; and so discover the characteristics in accordance with which we arrange them into separate divisions. Knowledge to be of benefit must be systematized. The most we can hope to do in any branch of learning is to master a few general facts.

Botanical Terms

If we are intelligently to study plants we must make an effort to understand necessary botanical terms. We will not put down a list of such terms and ask you to memorize them; knowledge thus acquired is seldom lasting. We suggest a better plan. To illustrate, as we study leaves we will notice peculiarities of form, tip, base, and outline. Those acquainted with flowers use special words to express such peculiarities, so in our study we will have occasions to use such words. Our suggestions to teachers and pupils is to make a list of such terms, master their spelling and meaning and

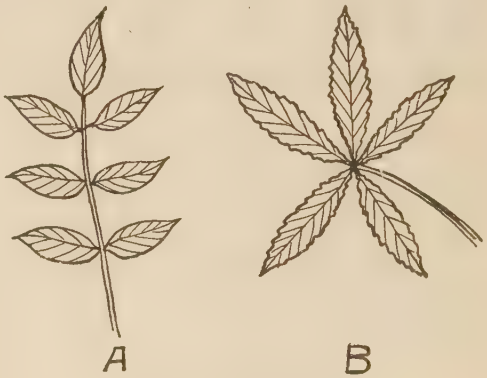
use them whenever you have occasion to describe a leaf. Persevere in this course until a casual inspection of a leaf suggests its description. We will pursue the same course with flowers and fruits. You will find that comparatively few terms are required, and the task soon becomes a pleasure. Every advance won gives you increased clearness of thought, wider mental vision, and a growing sense of nature's comprehensive work.

Simple Leaf

Study of Leaves
(See "Leaf," 1606)

First, collect your leaves. Leaves of all kinds should be collected. Gather them from trees in orchard; shade trees on the lawn; from forest trees; from bushes, shrubbery of all kinds; from flowers, weeds or house plants. If you notice a leaf of a peculiar form, add it to your collection. Preserve them for future inspection by pressing them between sheets of unglazed paper of any description.

This is a simple leaf. Notice the parts of which it is composed. The blade is the enlarged part of the leaf, the petiole is the stem by which it is connected with the twig or flower. The stipules are the small appendages near the base of the leaf. These are not always present, and are much diversified in form and manner of attachment. Now make a study of the leaves in your collection and leaves that you chance to meet. Take hold of, and say to yourself—"This is the blade, this the petiole, and here are the stipules." Put these terms down in the list you are constantly to review. When you can thus describe any simple leaf, you have taken your first step in botany. You are learning to observe; you have words of special meaning to use.

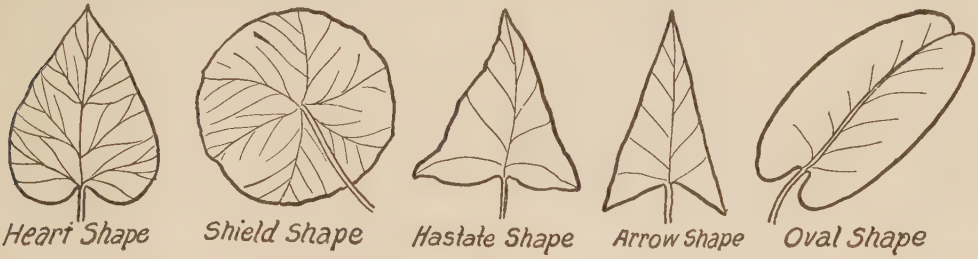


Compound Leaves

Leaves are not always simple. Some are compound. Here are two. The parts of a compound leaf are called Leaflets. Notice the different arrangement of the leaflets. In A the leaflets are opposite each other and are differently spaced on the main stem. Such a leaf is said to be pinnately compound. In B the leaflets all start from a common point. Such a leaf is called palmately compound. Look up the meaning of pinnate and palmate in a dictionary. Notice that each leaflet has a blade and petiole; they may have stipules also. Have you any reason for thinking that stipules are fragmentary remains of leaflets? Put down all these new words in your list of botanical terms.

General Shape

There are several other respects in which leaves are to be compared. We must compare the general shape. We represent five of the principal shapes. There are others. In most cases the names explain themselves. Hastate shape means shaped like a halberd. Find leaves



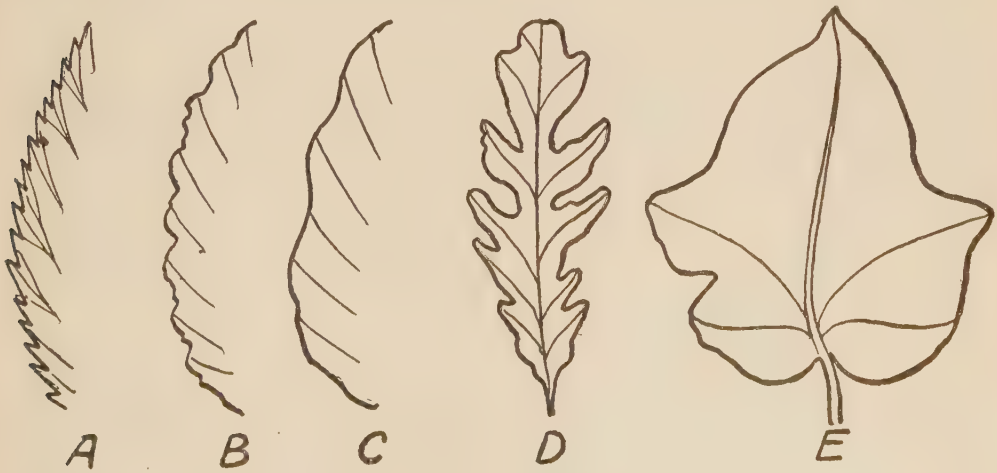
illustrative of these forms in your collection of leaves, or search for them in your walks. When you have occasion to note a leaf you are to point out its parts and specify its general outline. Constantly review this part of your work.

The margins of most of the leaves thus far described are said to be continuous or entire. But very often the margin is notched and we need terms to describe the notching.

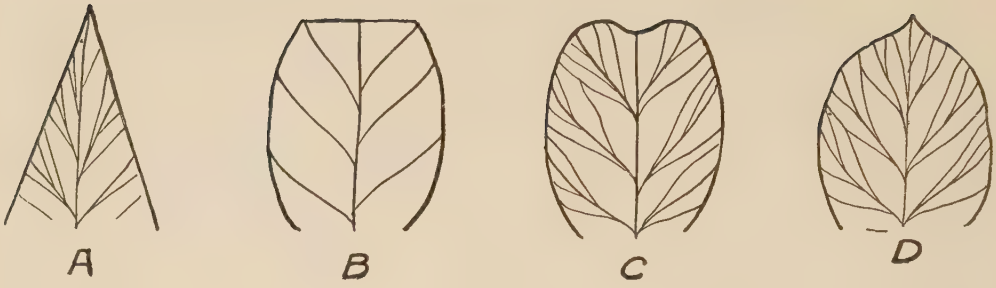
You can easily find samples of these various notchings in your collection. The first form (a) is said to be serrate (like a saw). If not quite so sharp (b), the margin is named dentate (tooth like). If still more rounded (c) it is wavy. When the notches are deep (as in an oak leaf) it is said to be lobed. In (e) the margin is sinuate (from sinuous, crooked). You must not hasten over this series of lessons. Study a large number of leaves. As you take up each one constantly review. Say as you speak of the parts, this is the blade, petiole, etc., or "its general shape is heart shape, oval, etc.," and now add description of the margin.

Tip of the Leaf

You have noticed in your study of leaves that the tips vary. We have terms to describe the main forms. (See 4232.)



Many leaves like (a) end in a pointed tip, but that tip may be sharp or acute or obtuse. The end may be, as it were, cut off, in which case it is said to be truncated (b), or it may be notched as (c), or the general shape of the top is



like a cusp (d), in which case it is styled cuspidate. Make a collection of leaves with tips to illustrate these terms. Add them to your description of a leaf. Review these terms from day to day.

Base Shape

The different base shapes of leaves are illustrated as follows:

(a) is heart shaped, or, as it is generally called, cordate. If the lobes are pronounced as in (b) like the lobes of the ear, the base is auricled; if sharp and pointed, as in the arrow shaped leaf, the base is accuminate; if the base lobes are long and wavy it is hastate shaped.

Suggestions

The terms we have illustrated are not exhaustive. The value of this study will be lost if you *hurry* over it or leave parts not well understood. Constant review with actual leaves before the pupils is needed. You can ask the pupil to cut leaves out of paper to illustrate these terms. They can draw them and color them with paints.

Exercises

Give pupils leaves to describe in writing, see that the right terms are used, correctly spelled. Make use of the following scheme:

KIND—Simple
PARTS—Blade (Petiole?—Stipules?)
SHAPE—Oval
BASE—Cordate
APEX—Obtuse
MARGIN—Serrate

Results

The results of this series of lessons on leaves (not from books) will be gratifying. The pupils are gaining first hand knowledge; they are studying nature; their powers of observation are being trained, interest is aroused and thought is stimulated. These are the mental traits of character that make for success in after life.

Function of Leaves

The functions of leaves are the purposes they serve, the work they have to do. We of course know that leaves add greatly to the beauty of trees and shrubs. A leafless tree in winter is a grim and cheerless thing; it is very different when dressed in summer foliage. But leaves are absolutely indispensable to plants. It is suggested that the following articles be consulted: "Do Plants Breathe?" pg.

3538; and "Why are Leaves on Trees and Bushes Green?" pg. 3543. These talks can be made of great interest and value.

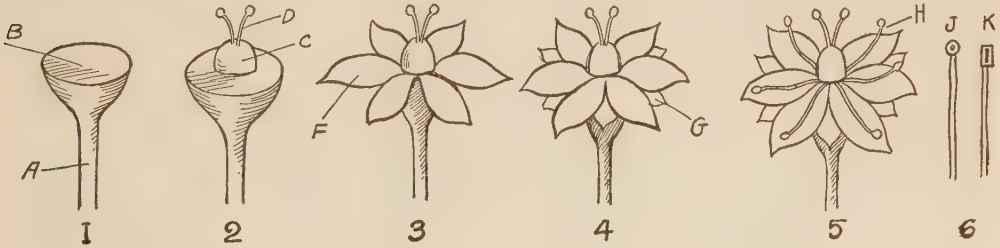
The Study of Flowers

(See "Flower," 1049)

Thus leaves have a work to do in preparing the tree, shrub, or plant for the blossoming, or flower producing stage of growth. This is the first step in the ultimate production of seeds, which render the continuation of the species possible. Apparently this result is Mother Nature's chief concern in the animal and plant world.

Make Use of Real Flowers

We will carefully examine flowers from gardens, orchards and fields, or more delicate blooms of house plants. But since we desire to gain a clear mental picture of a flower in general,—its parts and the functions of each part,—it is suggested that an artificial pattern flower be made. We learn most effectively by doing. Each pupil can make such a flower, the work will prove interesting and serve to impress on the mind helpful facts in this study.



The Pattern Flower

(1) Take a piece of pine and whittle it to the shape of a point. The stem (a) is the peduncle or flower stalk. It should be about three inches long. The circular top, about one-half an inch across, is the receptacle (b) on which the parts are arranged.

(2) Take a small cork. Cut it to the shape and size of about half of a large pea, fasten it with a short pin in the center of the receptacle (b). That piece of cork (c) represents the ovary. Take two pieces of toothpick. Trim them to round pieces. Cut the upper end of each square and make a black dot in the center (J in figure 6), insert the pieces into the ovary. Those pieces (d) represent pistils, the stick is the style, the top with the dot is the stigma.

(3) Cut out five small pieces of green paper shaped as shown in 3. Place a little mucilage on one end and lightly fasten them on the receptacle (b) around the ovary (c). Collectively, those little pieces of paper represent the calyx, each separate piece is a sepal.

(4) Cut out other five pieces of pink paper, shaped as shown in 4. Fasten with mucilage on the receptacle (b), around the ovary (c) just inside the calyx (4), so as to close the openings between the sepals (g). Collectively, those five pieces represent the corolla, each separate piece is a petal.

(5) Cut out five pieces more of toothpick, like the pistils. Sharpen the lower end. Fasten with mucilage on the top, small pieces of card board. The sticks are the stigmas, the pieces of card board with a little dark line down the center (k in 6) are the anthers.

Suggestions

Exercise patience and care in making the pattern flower. It will amply repay time and work. Put down in a list each technical term as you come to it. Study the flower as a whole. Repeatedly indicate the separate parts. Say, "This is the peduncle or this is the ovary, these are sepals, here are the anthers," etc. Verify this arrangement from a study of

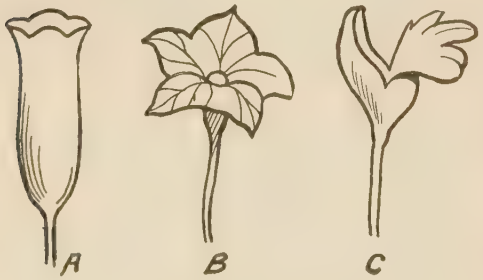
real flowers. Persevere from day to day until the location of these several parts and their names are fixed in mind. With every advance you will experience increased pleasure in studying direct from nature.

Modifications

The flower we have made may be named nature's pattern flower. But seemingly nature delights in variation and in her myriad flower forms are to be found numberless variations of this pattern. In a rose there is to be seen whorl after whorl of corolla petals, and so of other variations. The parts differ in number, in location, in shape; they grow together, or cohere, in various ways. Do not become discouraged. After becoming perfectly familiar with the pattern, try to see it in any flower you may examine, however disguised by variations. Make a note of these forms. We will mention a few of them. A large volume would not suffice for all.

Variations in Form

The parts may vary in number, they may grow together in different ways, they may be differently inserted on the receptacle, or a part may be inserted or grow out of another part; the stamens and pistils may be separated from each other, differently grouped, or even in different flowers.



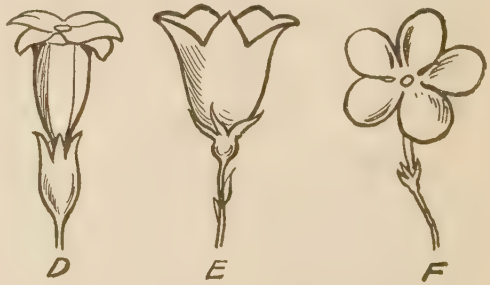
Uniting of Parts

Petal may grow to petal, or sepal to sepal so as to produce differently shaped flowers. Here are a few of the principal forms, many others are known. Familiarize yourself with these forms and these names. A careful inspection of spring flowers and blossoms will disclose samples of each.

In (a) the petals have grown together so as to form a tubular shaped flower; (b) is a wheel shaped flower; (c) is labiate (lip shaped); (e) is campanulate, (bell shaped); (f) is salvar shaped. All the above forms are said to be monopetalous. Notice in (c) a splitting apart into two groups. In (d) and in (f) notice the sepals, also have united, very pronouncedly so in (d). Such flowers are monosepalous. But notice these flowers are variations of the original patterns, one can still see the five petals and five sepals. Make a collection of spring flowers. How would you describe the morning glory? The honey suckle? A single lilac blossom? Can you see the petals? Take a common violet, one of the petals is said to be spurred. How many sepals? Petals? Stamens? Pistils? Describe as far as you now can the spring beauty, including the leaf.

Brotherhood

Other parts may unite, sometimes the stamens are united by slender filaments so as to form a sort of cylinder around the pistil. In some flowers they have so united as to form two or three slightly separated groups. The word delphous (brotherhood) is used to describe these



groups, and we have such terms as monadelphous, diadelphous, etc., to state this fact.

Insertion

The word "insertion" often occurs in the description of flowers. In the pat-

tern flower all the parts are inserted, that is placed on the receptacle. But now consider these illustrations. (A) is a section of a morning glory; the stamens are said to be inserted on (growing out of) the corolla. (B) is a section of a cherry blossom. Notice the petals and stamens are inserted in the calyx. (C) is intended

to illustrate still another point. The calyx is coherent with the ovary; or, as a botanist might say, the ovary is inferior. Please consider an apple. In the apple blossom the calyx cohered (grew around and clung to) to the ovary; it then grew thick and juicy. On the top of the apple you can still see the remains of the corolla which was inserted on the calyx. The apple stem is the peduncle of the original flower. The core of the apple is the original ovary.

Suggestions

Whenever you have occasion to make use of a botanical term, or notice one in a description, be sure you understand just what it implies. Constantly refer to your pattern flower and to the list you have made.

Arrangement of Flowers

Many flowers begin as buds in the axil of leaves; that is, the place where a leaf joins the vine or twig. Such flowers are said to be axillary; or the flower may be situated at the end of the stem; then it is said to be terminal. But flowers often grow in clusters of various kinds. We represent a few of the common forms.

1. Is called a spike. It is a cluster of flowers arranged on a main stem. The flowers have no peduncle. They are sitting on the stem and so are said to be sessile. The common wayside plantain is a good example, but the flowers are small and hardly noticeable.

2. Is called a racime, the upper flowers only are sessile, the lower flowers have short stems. Examine closely a lily of the valley, or the flowers on a chokecherry tree.

3. Is a panicle. It is like a racime, but the lower flowers are arranged two or more on a stem. Examine a head of oat.

4. Is an umbel. The flowers start from a common point. The blossoms of a common milkweed (see pg. 3478) illustrate this form.

5. A corymb is like the umbel but the flowers do not start from the same place, but the lower ones have longer stems, and so the appearance is not unlike an umbel.

There is not a conservatory or a good collection of house plants that does not afford illustrations of these forms. If you look you will notice them in the field flowers, in gardens on flowering shrubs and trees; make a search for them, use the proper term to describe them.

Remarks

Many other terms could be illustrated; we cannot describe all. Enough has now been given to enable you to understand the main points about flowers. It is necessary to observe carefully, to reflect, and then to use the right term in description. Remember this thought: The leaf is the unit, so to speak, that nature employs in flower making. All the parts of a flower are simply modified leaves; they are crowded together, arranged in whorls, some are colored, some twisted tightly to form pistils and stamens. But all you are studying are modified leaves. Another thought to remember is this: The pattern flower is the unit, so to speak, that nature employs throughout her floral kingdom. Yes, all the flowers you observe are modifications of that pattern. How few and simple are the elements with which nature works!

Other Floral Terms

A few other terms are used to describe fully the flowers you meet. Most of them are familiar but not in this connection. Make a list of the terms, study their meaning and use them in your description of flowers and plants. An herb is a plant that has very little, if any, wood in its structure. Shrubs are plants with woody stems, another term is bushes. A tree is a plant in which the main stem is entirely of wood and grows to a considerable height. Most of our wild flowers and our cultivated crops are annuals; that is, they grow from a seed, blossom, and die in one season. Those that require two years to complete the cycle are biennials; beets and onions are examples. The thick, fleshy root of the beet contains food stored up by the plant in its first year's growth to furnish nutrition for the greater draft of plant energy needed the second year to produce seeds; an end that nature never loses sight of in her work. Plants that live on from year to year,—like shrubs, asparagus or rhubarb,—are said to be perennials. If the stem of an herb grows directly upward, it is called erect; if it creeps along the ground like the strawberry, it is prostrate; if it rises by taking hold of objects like the ivy, it is a climbing plant; if as it climbs it goes round and round its support, it is a twining plant (morning glory).

Exercises

With the knowledge you now possess, very carefully study the leaves, flowers and stems of the morning glory. If you notice all these points, make use of the following arrangement in your description:

Morning Glory

PLANT—An herb.
LEAVES—Cordate, entire margin.
STEM—Climbing, twining, right to left.
FLOWERS—Axillary, three on one peduncle.
PETALS—Monopetalous, five parted, purple.
SEPALS—Five, green.
STAMENS—Five inserted on corolla tube.
PISTILS—One; ovary three-celled.

Describe numerous other plants,—spring beauty, field daisies, apple blossoms, snow balls, etc. Take these steps in order,—observe, reflect, carefully select descriptive terms, be neat in your work.

Study of Seeds

(See "Seed," 2602)

The aim nature seems to have in mind is the production of seeds whereby plant life may be continued. Flowers are made pleasing to the eye, exhale an agreeable perfume, store up minute drops of honey so as to attract men and especially insects by whose aid pollen from the anthers (top of the stamen) is exchanged from flower to flower. This is a very interesting subject and it were well to refer to "The Flowers' Errand Boys," pg. 3429; "A Treacherous Hostess," pg. 3440; and "The Milkweed," pg. 3478.

Fruits, Nuts and Grains

Nature makes use of many methods to protect the seeds while growing and to provide for scattering them when mature. To protect them she surrounds them with prickly covering, as in chestnuts; or places them in bearded heads, like wheat; or behind thick coverings, like growing ears of corn; and employs other devices with which all are familiar. When the seed is fully matured she enlists the aid of men, animals and winds to effect their dispersion. Some seeds she surrounds with valuable food material so that men are careful to save them and plant them for a further supply. This is true of oats, wheat, corn and other field crops. Some are enclosed behind a hard shell, but they contain such toothsome morsels that boys, squirrels and rodents gather them for winter use. Some are sure to be lost by the way; besides did you never notice squirrels planting nuts? Squirrels are nature's first assistants in scattering such heavy seeds.

In fruits, nature associates the seeds with a mass of juicy fruit so that men will gather them for use and assist nature in providing for a further supply. Some seeds are given wings and thus the wind is made to scatter them abroad; notice the seeds of maples in the spring. You know how dandelion and thistle seeds are spread. Some seeds are given hooks wherewith to attach themselves to your clothing as you brush past, or attach themselves to the hair and fur of animals that pass too closely.

Floral Terms

We give an outline for the study of leaves and flowers, using the terms with which you are now familiar. The object is to systematize the results of observation on leaves and flowers that you meet with in your nature rambles, or inspect in gardens, conservatories and in your homes.

More Advanced Study

This course of lessons is intended to serve as an introduction to a more extended course of study in Botany. It is well to make a careful study of the article "Botany," pg. 357. Then refer to Nature Study, pg. 3454. Let your aim be to verify as far as possible all statements made by examining natural specimens. There is nothing that will so increase your interest, vivify your knowledge, make you observant as an appeal direct to nature. If you follow this course, the rewards are more than simple increase of knowledge. Nature seems to welcome your advance and wonderful details of her method of work, hid from careless observers, are open to your inspection. You are climbing a mental hill and every foot of ascent enlarges your vision. Your life becomes richer, more abundant and you are mentally better armed for the conflict of mature life.

Study of Leaves

I. Kind
   1. Simple
   2. Compound
      (a) Pinnately
      (b) Palmately

II. Parts
   1. Blade
   2. Petiole
   3. Stipule

III. Shape
1. Cordate
2. Shield
3. Hastate
4. Arrow
5. Oval

IV. Margin
1. Entire
2. Serrate
3. Dentate
4. Wavy
5. Lobed
6. Sinuate

V. Tips
1. Pointed
2. Truncate
3. Notched
4. Cuspidate

VI. Base
1. Cordate
2. Lobed
3. Auricled
4. Acuminate

Study of Flowers

I. Parts
1. Peduncle
2. Receptacle
3. Ovary
4. Calyx Sepals
5. Corolla Petals
6. Pistil
   (a) Style
   (b) Stigma
7. Stamens
   (a) Filaments
   (b) Anthers

II. Modifications
1. Monopetalous
   (a) Tubular
   (b) Wheel shaped
   (c) Labiate
   (d) Companulate
   (e) Salvar shaped
2. Monosepalous

III. Arrangement
1. Spike
2. Racime
3. Panicle
4. Umbel
5. Corymb

Questions

Answers to following questions in Curiosity Department:

Do plants breathe?

Why are leaves green?

What are weeds good for?

How can you tell the ages of a tree?

How long do trees live?

What is yeast?

Do plants sleep?

Why do burdock burs have hooks?

Why does a cactus have thorns?

Describe a maple leaf.

A locust tree in my yard is in blossom. What is the name of the arrangement of the blossoms?

Nature modifies the pattern flowers. Can we help nature in such work? (See Burbank.)

What kind of an orange proves that you can help nature?

The next time you eat a banana, peel it down, break the fruit across,—do you see any resemblance to an ear of corn?

You dig potatoes out of the ground; also peanuts. Are they both nuts or vegetables?

A dandelion is growing on my lawn, what is the relation between that and our national flower?

In a bouquet on my table are roses, apple blossoms and lilacs. Two of them are closely connected. Which ones are they?

Fancy apples generally have five knobs at the top. Why?

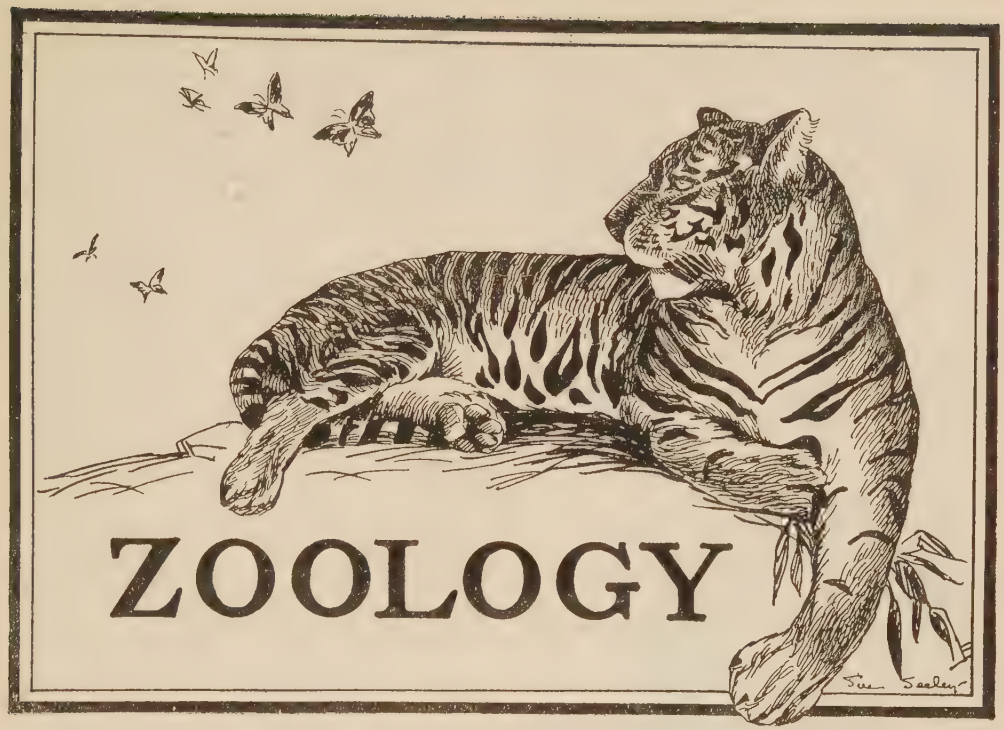
Further outlines for study:

Study of Plants (3449).

Study of Trees (3454).

Study of the Pine (3456).

For other classified questions on Botany, see page 502. Consult the pages given in Home and School Reference Work for the answers.



Zoology is classified knowledge of animal life. To gain such knowledge is to come to a closer acquaintance with nature. We have prepared outline and suggestions to serve the purpose of this study, and we trust that many will avail themselves of this opportunity to gain an outline of knowledge that will enable them to discover much of beauty and interest in field and woods; in lowly life forms that hide beneath the leaves or dart past in quiet pools, that sing in nearby orchards, or assist in daily work. All of these forms are wonderfully complicated mechanisms presided over by the mysterious force of life. We, ourselves, fit in this scheme of things as nature's crowning work.

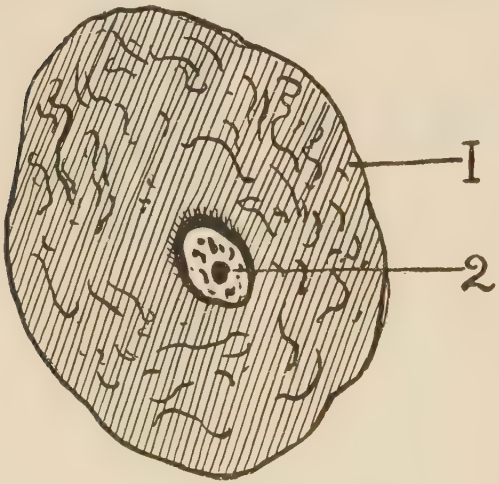
Method of Study

As in the case of plants, this is not to be a text book study though it will be necessary to define some technical terms to enable us to understand the description of various life forms that we will meet in later studies. In our nature rambles we learned many interesting facts about birds and other forms of animal life. We are now to classify that knowledge, and by closely questioning nature add to that store of information.

The Cell

One of the marvelous facts about animal life is that nature builds all her animal forms, from the smallest to the largest,—even to man,—out of one unit of growth known as a cell. Our own body is a collection of cells, many millions of them, but they have been modified in many ways so as to serve different purposes,—some are nerve cells, some muscles, bone, etc. All animal forms are built up of individual cells, and each cell has a life of its own apart from the general life of the animal. We cannot dwell on that thought at present, but let us gather a few facts about cells.

This is a drawing of a greatly magnified cell. Some are so small that 25,000 of them, laid side by side, would only extend an inch in length. In a single drop of your blood there are several million blood cells and, as we shall see later, each one is alive and ready to do battle for your general health. You notice there are different parts to the cell. The main part (1) is an exceedingly small mass of a jelly like substance known as protoplasm; a very delicate membrane forms the outer surface, it encloses and preserves the protoplasm. The central dot (2) is known as the nucleus. The cell is the element with which nature



works. When we build a house we make use of brick, stone, iron, wood, and glass; but nature in building her myriad life forms makes use of this one element only, but modifies it to suit her purpose. Write down the words cell, protoplasm, membrane, and nucleus. Refer to a dictionary for their meaning.

Chalk Crayon

A large volume would not suffice to describe these primitive life forms. Instead of using these words to name them scholars speak of the protozoa which has the same meaning. Did you know that every time you make use of a chalk crayon you are employing a closely compacted mass of tiny shells, each of which was formed by a minute animal of this species (consult article "Chalk" 541)? These tiny first forms of life had a great deal to do in building certain strata of the earth, and nature is still making use of them. They are the most abundant of all her children, and the amount of work they do is enormous. They are in the water of wayside ditches, in swamps, in dust that is blown by the wind into the house, getting into your body they may cause diseases; malaria is a conflict between the blood cells and a form of amoeba. They are the principal actors in the microscopical animal world.

A Sponge

We have been considering a one-celled animal. Nature soon begins to group these cells without greatly changing their nature. When you make use of a sponge you are employing a substance formed by a tiny animal in which the cells are arranged in two layers, much as if you were to take a hollow rubber ball and press one side against the other. Then a colony of these animals unite to build a common structure through which sea water is filtered, and nourishment for the entire mass is thus obtained (see article "Sponge" 273, and "Where do we obtain Sponges" 3566). If you have a piece of coral, you have a piece of a house constructed by a colony of two-layered cell animals. Like the one-celled animals they have done (and are doing) an immense amount of work. Entire islands have been built up by them in the Pacific (see "Coral" 701).

Nature's Method of Work

Now, please notice nature's method of work. First the single cell; but that cell is alive, goes through its life cycle, moves, gathers nourishment, has a work to do. Then a number of these cells are gathered together so as to form two-layered animals; they build a structure to serve for a common home. But each little animal is a separate life. Notice

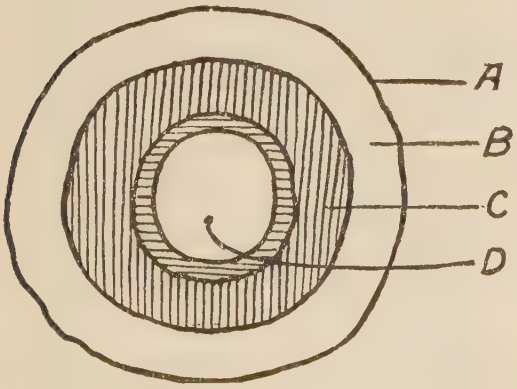
also the absence of internal organs. A higher form of life must now be considered.

Earth Worms

You know what an earth worm is and what it looks like. You have noticed them sprawled out on the ground in the morning after a rain. They have been drowned out of their little burrows in the ground, just as, perhaps, you have drowned out woodchucks. You can easily find their burrows most anywhere if you scratch the surface of the ground. We have spoken of the work performed by the protozoa. Before passing on we must call your attention to the vastly important work of these humble worms. They are the farmer's first assistant. It is estimated that there are on an average 50,000 earth worms in an acre of ground. They are constantly working the earth over making it soft and pliable. Nature has some work for all her children to do.

A Higher Plan

But it is important to note that nature adopted in the body of worms a new plan of structure, the starting of higher life forms, that is, nature adopted the



plan of rolling the body up so as to form an inner tube, and in that tube she places some rudimentary organs, such as a stomach, heart, etc. A simple modification apparently, but on that model nature has constantly labored to evolve higher forms of life.

If an earth worm be frozen and carefully cut squarely across, we would readily see the new plan that nature adopted. Notice the inner central tube, (a) is the outer skin, (b) is the outer muscular layer, (c) is a muscular coat surrounding the central tube (d), and in the tube are various organs. These organs are crude beginnings of brains, heart, blood-vessels, etc.

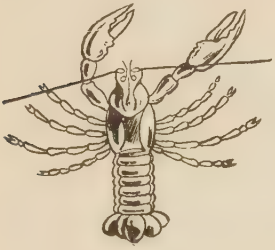
Steps in Advance

Do not fail to notice the steps in advance. First the simple celled animals, having no special organs. Such animals eat by simply flowing around tiny morsels of food and someway dissolving it. Then cells unite to form a two-layered cell animal, generally many such animals combine as a colony and build up a structure to serve their common use. In the third step nature arranges many cells, rolls them together so as to form a two-tubed animal, places special organs in that central tube, and sets the animals crawling by contracting the segments of which the body is composed. Notice, she sets them all at work. Some are building up great layers of chalk, maybe hundreds of feet in thickness; or forming ocean islands on the surface of which higher animals find a home; and worms are busy making the land fertile. However, none of nature's life forms is crude; it is exquisitely fitted for the work it has to do. A lifetime could be spent in the study of worms alone and every day something of great interest would be discovered.

The Joint-Footed Animals

The body of the earth worm is built up of segments or rings as you can see by examining one. Its progress along the surface of the earth, or through it, is assisted by minute bristles, each ending in a hook, and you will find from two to four such bristles on nearly all segments. If you will pass your finger very gently along the body of the first wiggling angle worm you can find, from the tail to

the head, you will notice the slight resistance these small bristles make. Now, Mother Nature when she took the worm family out of the sea and set them to crawling on the ground, took the next step in advance by changing those bristles into legs; theoretically there are two limbs on each segment. You have doubtless seen centipedes or hundred legged worms. It is one of nature's first modifications of the worm type. This division is called the arthropoda or joint-footed animals, and in this division we will find many lowly forms of life with which we are familiar. Remember, as we examine them, the type from which they have been developed.



Crayfish

Spider

Butterfly

At first glance you see little resemblance between these animals; but, rather loosely speaking, they are first cousins to each other. All belong to the joint-footed family, the bodies of all are modifications of the original worm-shaped body. Notice the segments have been crowded together, they have lost their individual character, we speak only of the head, the thorax, the abdomen. In insects there is a constriction between these parts and that tightly drawn girdle gives them the name of insects (cut into). True insects have also four wings which may be regarded as modified legs. Notice the resemblance due to their common origin, all being modifications of the worm family type.

Material for Study

The material for study of representatives of this family is very abundant,—beetles, bees, bugs, flies, ants, grasshoppers and crickets are found everywhere. They are all described under their titles in the reference volumes of this work. They chirp in the grass of fields, you see them storing up honey, the firefly flashes its light, the cheerful hum of the bees enlivens your orchards; against some you must wage persistent war or they will destroy your crops. But the floral world could not exist without insects. If worms are nature's plowmen, insects are her expert gardeners. It is both interesting and instructive to come to a closer acquaintance with this important division.

The Head

The main parts to study are the head, thorax and abdomen. Concerning the head, you will observe whether it is firmly fastened to the thorax, as in beetles and crabs; or whether it has a neck, as in most insects; and notice the appendages to the head,—these are hairs, bristles, antennae, mouth parts, eye, etc. Details of great interest may be learned. Is it a crayfish you are examining? The eye is at the end of a jointed stalk that can be turned in any direction.

And what looks like one eye is really a collection of hundreds of eyes. Is it a butterfly? Each of what appears to be a single eye is really made up of thousands of small eyes. Then there are various parts,—such as the feelers, mandibles, the coiled lips of moths and butterflies.

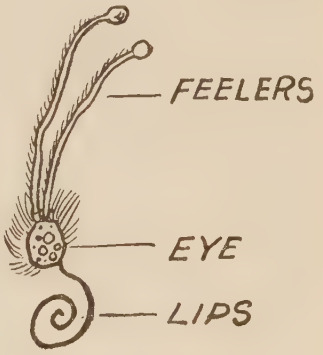
The Thorax (Chest)

The thorax, which you are to study, is that part of the animal that supports the legs. Observe, the legs are all jointed and there are nearly always present what

look like minute toes, or nails, or hooks, on the last joint. Notice the modification in the first pair of legs in the crab. Catch a June bug and see how it hangs on to objects by these claws. The thorax is provided with muscles to control the movements of the limbs. In winged insects the wings are borne on the thorax. In most insects you will notice four wings, but insects may be wingless, or have but two wings. One pair may serve as wing covers to the true wing, as in beetles. (See the potato beetle.)

Wings must be studied because they are used to classify the insects. They may be lace-like as in the dragon fly; shell-like as in beetles, membranous as in bees; straight as in locusts; scaly as in butterflies.

EYE OF A CRAYFISH



BUTTERFLY

The Abdomen

The abdomen is the hinder part of the body. It usually shows the rings very distinctly. It has some appendages, like the spinning legs of spiders, the stings of bees, the ovipositor or egg placer of insects. In the case of grasshoppers the ovipositor is a long strong tube with which the insect bores into the ground and deposits its eggs.

References

Consult the article on the Fly, page 3484; and there are many subjects in these volumes that should now be studied such as Ant, 198; Bee, 266; Butterfly, 433; Caterpillar, 521, and others. In nature rambles are many interesting statements concerning various members of this family. Whenever you have occasion to read description of some of these animals, or stop to examine some insect that attracts your attention, remember the great division to which it belongs, and that division is but a modification of the worm division. Thus will be impressed on your mind an outline of nature's method of work,—modifications and combinations of the simple cell. As if anxious to impress this fact on our mind, nature furnishes an object lesson in the life history of many members of this family. The worm stage of life precedes the insect stage; the crawling caterpillar (worm) of today becomes the butterfly of tomorrow.

The Mantle Covered Family

Every one has seen oysters, clams, and snails. These animals are generally regarded as strange modifications of the worm family. The segments have disappeared and the body is usually thick set, and soft; hence the name mollusca, meaning soft. In every case, the skin is soft and shiny, and like the angleworm demands moist haunts. But another modification appears. Consider the harder shell-like cases of the crayfish and beetles. In the family we are now considering, nature throws round the animal body

a mantle as you don an outer robe and in a great many cases that mantle has the power to secrete lime and forms a shell covering for still greater protection. Here again, we are in the presence of one of nature's most numerous families. The countless thousands of sea shells were once inhabited by some specimen of this family, the shells themselves were all secreted by the mantles of the animals. (Consult the subject "Pearl" 2195.)

Oysters settle down early in life and henceforth live in one place. Clams can move, very slowly of course, in the sand at bottoms of rivers. Snails can move slowly from place to place. Nature has not seen fit to develop feet for these animals, but leaves them to wiggle along like worms. If you find a snail notice the eye stalks at the end of the stomach-foot. Just as you can push the finger of a glove into the body of the glove and roll the glove into a small compass, the snail can withdraw his eye stalk into his stomach-foot and then the whole body into his shell by means of relatively strong muscles attached to the mantle and shell. (See 3499.) Whenever you see a snail, or find a clam, or notice an oyster—recall that they belong to the mollusca, are rather distantly related to the arthropods, and probably had a common ancestor in the worm family. It is indeed wonderful how nature uses countless modifications of one pattern form.

A Step in Advance

All the animals thus far considered are soft-bodied animals destitute of bones. But it really seems self evident that nature must adopt a different plan if she has to have animals capable of doing advanced work. She must have lagrer and stronger animals, animals fitted to walk on the land or fly in the air; and, more important still, she must have more intelligent animals, that is to say, she must endow them with a vastly improved nervous system—and so we come to a great step in advance.

Animals with a Skeleton

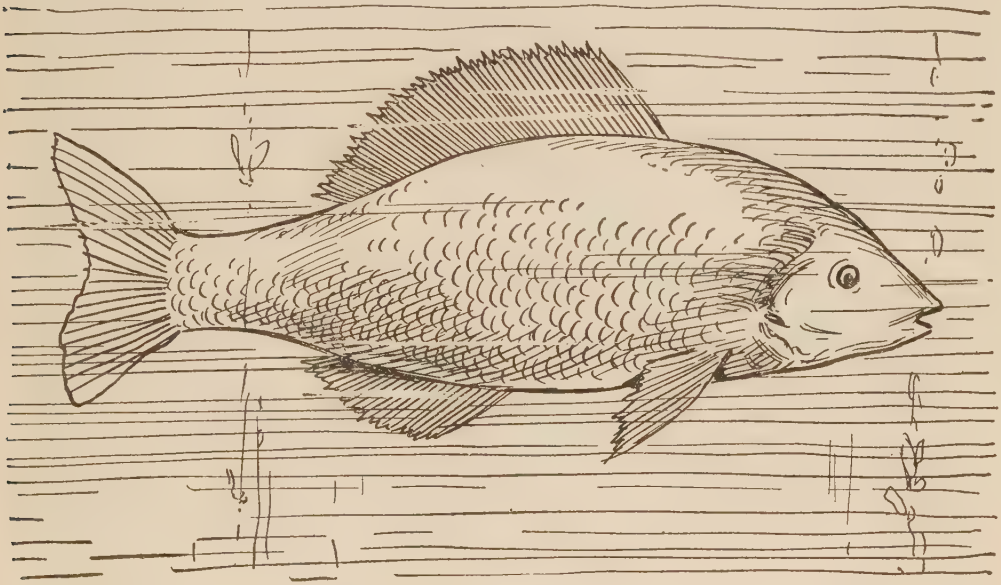
Accordingly, she modified the inner tube idea, introduced in the worms, and built an inner, bony, jointed, skeleton framework around the inner tube; this modification gave strength to the body, protected the important inner tube, permitted the attachment of muscles by which the entire body could be manipulated with greater strength and freedom. To properly manipulate the improved machine required quicker and better controlled nerve action; so nature stretched an electric cable down the back of the bony framework (we call it the Spinal Cord), and protected it by closely fitted segments of bone (we call these segments vertebrae), and sent off branching electric wires (nerves) from the vertebra joints to the muscles, and placed a better organized brain in the head. Of course along with these improvements went better internal organs. We call the final result a vertebrate, or backboned animal. As is the case with all of nature's work, she introduced these changes gradually, as if feeling her way. Notice, further, all this series of changes consisted in modifications of simple cells.

First Life Forms

Those who have studied the history of the earth tell us that in the primitive long-ago water covered substantially the entire surface of the globe, consequently about all of nature's life forms began as water plants or animals and became modified for life on the land. We will therefore turn to the sea in beginning our study of vertebrate animal life; we will study fishes. All are familiar with fishes, you see them in the markets, probably you have caught them, or you may have gold fishes in your home. The different classes of fishes are so numerous that we cannot even mention them, but there are some points you should study, and then you are to notice how fishes differ among themselves in these respects. (See "Fishes" page 1031.)

Fins

A gold fish is easy to obtain. Notice the fins near the neck and those on the lower side, two of each. The first pair are pectoral fins, the second pair, ventral fins. Look up the meaning of these words. All fishes have these fins. Nature persistently clings to them, and they represent the legs (arms and wings) of higher animals. Most fishes have three other fins. Notice them on the gold fish. One or more along the back are dorsal fins. The tail is the caudal fin; the fin on the under side of the fish, near the tail, is the anal fin. Fins are of course differently shaped. Fishes swim by means of the caudal fins; the other fins are to balance the fish in the water and to direct his course.



A Gold Fish

Scales

The body of the gold fish is covered with scales. Most fishes have this defensive armor. Study the arrangement of the scales for they are very different in different fishes. Attempts have been made to classify fishes by the form and arrangement of the scales. The next trout you examine, notice how very small the scales are; in a catfish or bullhead, they are gone altogether, but these last fishes have long feelers about the mouth, which give them a formidable appearance. Notice this survival of the feelers of the crayfish. When nature has once adopted an organ she seems loathe to abandon it entirely, and it reappears in higher forms of life perhaps strangely modified. In the case of scales, having adopted the plan of giving the skin a protective covering, nature adheres to the plan and the scales of fishes become the hair and feathers of higher forms.

Gills

You must also examine the gills. Lift up the scale-like form covering the opening in the neck. That is the gill covering, the real gills are the red filaments attached to bars between each slit or opening. The blood is sent through these filaments and there brought in contact with the oxygen of the air in the water. As you know, all forms of life must be furnished with oxygen in some way (see page 3538 "How do Fishes Breathe?").

Air-Bladder

If you have occasion to dress a fish be sure you make a search for the air-bladder. You will find it in most fishes (but not in the common mackerel). This little cylinder is filled with gas, mainly oxygen secreted from certain blood vessels and serves to lighten the body of the fish but it is essentially a stored up supply of oxygen. It should be noticed because it is the organ that becomes the lungs in higher forms. The gills disappear, the air-bladder survives as a lung. Scholars can trace the changes through various forms. Such facts as this must be borne in mind as illustrative of nature's method of work.

Teeth

As if recognizing the fact that her vertebrate children must eat an abundant supply of food to generate the increased energy their life demands, nature began by furnishing them with teeth, which, with one notable exception in the case of birds and minor exceptions elsewhere, have been retained. You should examine the teeth of fishes because you will then discover that the jaw bones are not the only bones that support teeth. They are sometimes found upon the roof plates of the mouth. If you can catch a carp you will find teeth upon the bones of the throat; take a good look at the throat of the next sucker you catch. In some varieties of sharks there are several rows of sharp teeth.

Modifications

We have been thus full in describing fishes for they are, so to speak, the pattern vertebrate family; the first real vertebrate animals nature built up after long experiments with intermediate forms. They are of course very abundant now, they were once, relatively, more so, and an entire geological age is known as the age of fishes because they were the predominant type of life. But fishes were only fitted for a life in the water. There remained the land and the air to people, and so nature introduced other forms of life.

The Amphibians

As preliminary forms destined to live altogether on the land, nature first made animals that when young live in water and breathe by means of gills, but when full grown they have developed lungs and live on land, though they require moisture, or at least moist haunts and if deprived of this they die or become torpid. We call such animals amphibians meaning "both kinds" a fitting name as you see (see "Batrachia," page 257). All are familiar with representatives of this family. As frogs, their friendly croaks announce the arrival of spring; as toads, they are working in your garden, clearing it of beetles and bugs. Nature seems to believe in object lessons. In changing the worm to the butterfly she tells us plainly that worms were an earlier type of life. In changing the swimming fish (tadpole) to the croaking frog she emphasizes the fact that the fish was the other forms of life.

The Changes

You can find a frog in market, or perhaps you can find a friendly toad; he is harmless, examine him but do not injure him.

The whole series of changes are here illustrated. The little swimming animals are tadpoles; they breathe by means of gills, and are essentially fishes. As they grow little swellings appear near the head and near the tail. These finally open and legs appear. The tail is absorbed and parts of it drop off. The tadpole has to come to the surface to get a breath of air. The gills are disappearing, the lungs are forming. At length he crawls out on the ground, gives a satisfied croak, and we call him a frog. Thus nature rehearses the method pursued in fitting some of her water children for life on land.

Reptiles

Amphibians were perhaps an experimental form of life. As if satisfied with the result, nature seems to have taken the fish body type and worked it over for life on the land. Since the animal was no

longer to swim but to walk the pectoral and ventral fins are replaced by legs, the caudal fin becomes a long jointed tail generally trailing on the ground. Even the scales of fishes are retained in some cases, modified of course, and the dorsal fin sometimes appears as a frowning, spiney ridge along the back. Lungs, however, are fully developed from birth. There are some internal changes which we need not consider. The resulting animals are called Reptiles.

forms of small fishes. Most of the present day reptiles are objects of aversion, but perhaps you have seen chameleons? The little lizard that changes color to agree with his surroundings. Those shy little animals, attached to a tiny chain, are sometimes worn as ornaments. Left in a room they can be tamed and trained to come at call. If you can find one, watch him breathe and note how the air passages extend far down the sides of the body. If you watch carefully you

Change of Tadpole to the Frog

The Age of Reptiles

The general design of the fish body was a very efficient one, and we have seen what extensive use nature made of it in the age of fishes. Quite naturally the age of fishes was followed by the age of reptiles. They literally took possession of the earth. Some were flying in the air (nature was experimenting on the bird type); some were swimming in the sea; while countless species were living on the land. At the present day there are comparatively few species. The eels of the fish family are analogous to the snakes of the reptiles; the sharks of the sea to alligators of the land; while the lizards remind us of the graceful

may see him catch a fly and you will be surprised at the long tongue that shoots out from his mouth like an uncoiled spring and catches the unwary fly.

Another Step in Advance

We have just seen that some of the early reptile forms could fly in the air. Insects had been flying in the air for ages, but they were light and fragile creatures. Nature was feeling carefully her way to equipping higher forms for flight. As usual, she began by modifying existing forms, this time the reptile type. In rocks of our western states we find fossil forms that present strange intermediate types. One was a creature about the size of a crow. It had a long

beak armed with teeth; its wings were tipped with claws like a lizard; it had a jointed tail as long as the rest of its body; and each vertebra carried two long feathers. As it is hard to say whether it was a lizard or a bird, our scholars give it a long name, Archeopterix, meaning first wings and let it go at that.

A Chameleon

Birds

But that was only a beginning. We do not know all the steps taken, but the final result is our present bird type. The object was to make a light, strong body fitted for flight. In birds like the ostrich and swimming birds other modifications were made, but the ability to fly is the principal characteristic. Teeth were removed from the mouth so that the flying creatures would not have to carry a heavy bony jaw, and nature kindly gave her bird children a specially prepared digestive mill that we call the gizzard (see 3565). The lizard-like claws have been bunched together so as to form a symmetrical wing; the wing is for flying, not to catch food. The long jointed tail was of no benefit to a bird, so the verte-

brae of the tail are fused into a knob from which the tail feathers grow; arranged thus, they act as a rudder to steer the bird in flight.

Flying

In order to fly there must be strong muscles to move the wings. Accordingly, breast bone bears a verticle plate, or shield, giving firm support to the wing muscles.

Feathers

Finally, the rest of the body, except the lower limbs where they would be of no use, is clothed with downy feathers,

The Archeopterix
Notice the teeth, jointed tail, and claws at end of wing

study the body of a bird and note that the vertebrae are more or less fused into a rigid framework, to which are attached the ribs that in turn unite with the breast bone, and in the flyers the modified scales, giving roundness to the body, enabling the bird to cleave the air with great ease, but—what is perhaps more important—the feathers are non-conductors of heat, and thus save the

heat of the body. Every pilot on a flying machine knows how very important it is to be warmly clothed when attempting flight in the upper air. Thus every step of the way from reptiles to bird is evidence of the wondrous intelligence displayed in all the works of nature (See "Feathers" 1007).

References

It is impossible to mention the different orders and it is not necessary. Consult the article "Bird" on page 303 of this reference work, and make a study of the outline in Nature Study. You will also find many interesting facts mentioned in nature rambles. Birds are everywhere and you can surely get one for careful study. Perhaps you have a canary or a polly; or are interested in pigeons or poultry. Whatever bird you select, study it with the outline before you.

Mammals

Mammals constitute the last and highest class of vetebrates, and are of special interest to us because we, considered as animals, belong to that division. It is a very large order, comprises animals of all sizes and every degree of intelligence. Many of them have been domesticated and we are indebted to them for work, clothing and food; while the dog has become a most devoted companion and friend. But all mammalia, from the least to the greatest, have certain characteristics in common with ourselves. For the purposes of this study they have been sufficiently described elsewhere. (See "Mammalia," 1757, and 3198.)

A General View

The value of this zoological sketch depends upon the general view you obtain of nature's unfolding plan. As in a painting it is necessary to step back to a point where detail is lost in general effect in order to grasp the idea the artist has striven to express, so it is necessary to review from time to time the ground over which we have travelled, to obtain a general idea of nature's work. We have made a number of such stops on our way. It is well then to ask what seems to have been the great object nature had in mind to be advanced by the development of the mammalian form of life.

Nature's Purpose in Mammalian Life

It was not brute strength; many of the reptilian forms of life were larger and stronger than present mammals. It was not a more perfect body construction; nothing can exceed the exquisite perfection of the general organism of birds to the purposes of their life. But we can all see that nature needed more intelligent animals, and she needed animals manifesting higher planes of thought and action; exemplifying love, altruism, and conscience. The young of mammals require a mother's care, which develops love and parental responsibility. The period of infancy and youth is greatly extended. Scholars tell us that in that lengthened period of infancy lies the secret of all higher advance. That advance necessitated modification in bodily structure. In advanced mammals the body tends to assume an upright position, becoming fully so in man.

In Conclusion

Thus we come to the end of this zoological sketch. Grasp this thought: the extent to which life and intelligence can manifest depends upon the efficiency of the machine over which life presides, and all the efforts of nature from protozoa to man have been to build up an effective machine to serve the higher purposes of life.

Outline

We have prepared an outline to assist systematic study of this sketch. Outlines for a more formal study of zoology can be found in article "Zoology" pg. 3198; and in the "Topical Index" pg. lxxx of the Index; still other outlines can be consulted in Nature Study as follows: Birds, 3457; The Bee, 3463; The Dog, 3464; The Squirrel, 3464; The Duck, 3465.

Outline for Study of Zoology

I. Cells
   1. Protoplasm
   2. Membrane
   3. Nucleus

Invertebrates

II. Body
   1. One celled Protozoa
   2. Two layered animals
      (a) sponges
      (b) corals
   3. Three layered cell animals, body in closing an inner tube.
      (a) legless, or crawlers, segmented body, Worms
      (b) arthropods, or joint-footed bodies. 1. Walkers—crayfish. 2. Fliers—insects.

III. To Study
   (a) Head
   (b) Thorax
   (c) Abdomen

Vertebrates

I. The worm body furnished with an inner supporting skeleton, generally bone; better developed special organs, much better developed nervous system.

II. Fishes
   (a) Body—skeleton generally bone, surface generally protected by scales
   (b) Respiration—by means of gills
   (c) Living—in the water

III. Amphibians
   Fitted for two forms of life
   (a) Living in water while immature. Essentially fishes
   (b) Living on land when mature

IV. Reptiles
   The fish body, modified for land life—fins changed to legs, gills give place to lungs

V. Birds
   The reptile body modified for flight

VI. Mammals

Questions

The following questions are answered in the Curiosity Department:

Why is a tiger striped?

How does a worm breathe under ground?

How do little chickens breathe before they are hatched?

What insect is necessary to raise clover?

How does a toad catch flies?

How do fishes breathe in the water?

Why does a cat have whiskers?

Why is a dog's nose cold?

What does a queen bee do?

Where does a snail find its shell?

Do animals talk?

How ants keep little cows?

Why is it birds do not have teeth?

Where do we obtain sponges?

Animals are said to act instinctively? What is the instinct? (1452).

Is there any essential difference between the cells out of which animal structures are built and those out of which plants are built?

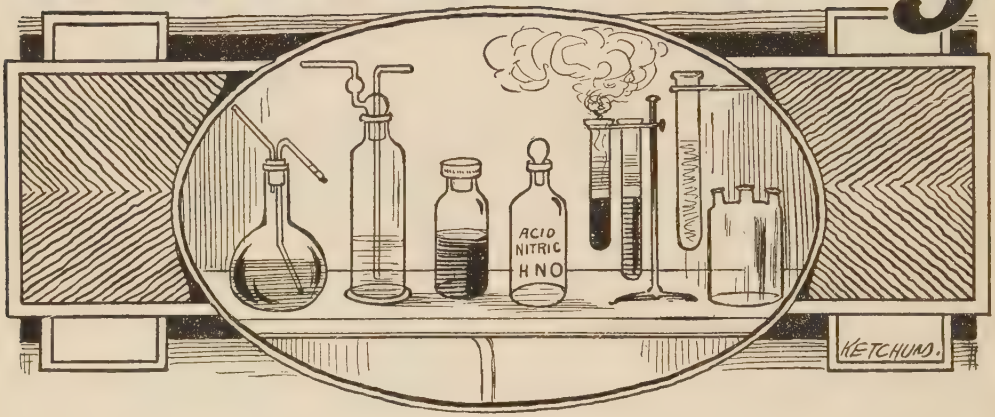
Can you think of any real difference between animals and plants?

Make a list of all the points of resemblance between them.

What is man's great superiority over animals below him in the scale?

You will find about 200 other questions on Zoology in our Classified Questions.

Chemistry



Here is a jar of water. We say the water is a liquid. We understand quite well what that word means. Its particles move readily. We experiment with it and learn that we cannot, by pressure, change its volume. We subject it to heat and it passes into vapor that we call steam. When in that state, it displays new properties, but it is still water under a new form. We expose the water to low temperature. It crystallizes as ice. Is is now solid. We can discuss its characteristics as a solid. We discover that a great many substances can be made to assume these several states. The different states of matter that we have thus illustrated, the experiments we make with them (provided we do not in any way change the essential nature of the original substance) are physical problems. Classified knowledge in this regard is known as physics.

But now take the same jar of water, add to it a small amount of sulphuric acid, suspend in it two strips of platinum connected by wires to an electrical battery and close the circuit. Bubbles begin to rise from the strips of platinum. The water is disappearing, we have changed it into two different gases. This is a chemical change. Notice the difference between this change and a physical one.

The Range of Chemistry

On investigation, we discover that virtually everything we see around us, everything we use in daily life,—the coal we burn; the wood, stone, brick, and glass of our houses, and so on,—can be split up into simpler substances that are not at all like the substance with which we started. We do not mean into smaller particles of the same substance, but into different substances. You can crush, grind and powder sugar until it is exceedingly fine, but each little piece is still sugar. You have subjected it to physical changes. But as in the case of water, and with equal ease, we can change that sugar into two substances—charcoal and water—neither of which is sugar. And then we could split up each of these products and thus show that each little piece of sugar, no matter how small—so small that no microscope can show it—is made up of a number of different substances, combined chemically, not physically. The substances thus derived from

other substances, which cannot be further split up, are known as elements. (937.)

Chemistry

Chemistry is classified knowledge of the elements of which all material substances are composed. The different forms of matter are innumerable. But we discovered in studying botany and zoology that nature made use of units of work variously modified and that all animal forms in the world are composed of differently modified cells. And we discover in the beautiful economy of means employed by nature that the globe itself —all that live and move upon its surface, the atmosphere, the water, the soil, and rocks, are composed of about eighty different substances that we call elements. Some are exceedingly rare, others everywhere around us; some exist as gases, others as liquids, still others as solids. But there are only about eighty in all. (The articles on "Chemistry" (p. 563) and "Atomic Theory" (p. 190) should now be read with care.)

The Elements

The elements have been given names and these names are indicated in chemical works by certain letters. We know the peculiarities of many of the elements, as, for instance, that oxygen readily unites with other elements. We know what substances many of them make when combined, as that water is the chemical combination of oxygen and hydrogen. We understand the proportions in which they combine, as two volumes of hydrogen and one of oxygen unite to form water. We know the relative weights of the elements, as that oxygen is 15.96 times as heavy as hydrogen. In the following table we give the names, symbols and atomic weights of fifteen of the most important elements. The atomic weights are in each case the present most accurate determination, but, generally, round numbers are given, thus: oxygen—16. Reference should be made to this new, complete Reference Work for further details on each of the elements given.

Elements	Symbols	Combining Weight
Hydrogen	H	1.
Carbon	C	11.97
Oxygen	O	15.96
Sodium	Na	22.29
Silicon	Si	28.
Phosphorus	P	30.96
Sulphur	S	31.98
Chlorine	Ce	35.37
Iron	Fe	55.9
Copper	Cu	63.1
Silver	Ag	107.66
Gold	Au	196.2
Mercury	Hg	199.8
Lead	Pb	206.4

Atoms

Elements themselves must be composed of units of mass or structure. You may have, for instance, a piece of pure gold, that means that there are no other elements present. What is the unit of mass of the gold? We call it an atom. All elements are composed of atoms.

What Is An Atom?

Up to the last decade of the nineteenth century it was generally agreed that atoms were the ultimate particles of matter. They were, to be sure, infinitesimally small, a great many millions of them in the smallest portion of matter we could see, feel, or handle. And it was further supposed they were immortal, that is to say they could not be further split up or in any way destroyed. An atom of oxygen, for example, could be united with many other and different atoms so as to form a molecule of some substance as, for instance, water. And in the case of that molecule it could by suitable means be split up so that the atom of oxygen would be again set free. But during all this time, it remained an atom of oxygen. And similarly in the case of all atoms.

Present Theories

All this has now been changed. We understand that an atom is a wonder-

fully complex structure, fully as mysterious in its way as is the solar system itself. In fact, an atom is a sort of solar system, and it is even permissible to speak of the astronomy of an atom, for the atom of the olden days is now known to be a system of revolving electrons, hundreds of them in the confined space of the infinitesimally small atom, that we formerly thought could not be divided. And our knowledge of radium shows us that these small electrons are revolving at a tremendous speed—upwards of 100,000 miles a second, on infinitesimal orbits within the atoms. Atoms, instead of being immortal, are flying to pieces all the time. In the case of radium this disintegration is going on at a comparatively rapid rate, but all matter is more or less radio-active, and all can easily be rendered more so. And radio-activity simply means that atoms are disintegrating.

Radium

In the case of radium, this process is going on spontaneously. It is quite beyond our control. We can neither initiate nor terminate it. It continues without a moment's cessation, at a vastly more rapid rate than we know how to induce, and many, many electrons fly out from the tiniest radium mass every second. And yet the total number of atoms present, even in the smallest mass of radium, is so inconceivably great that hundreds and even thousands of years will elapse before it will disappear. The destruction of an atom is an event relatively as important as is the destruction of a solar system, which we sometimes glimpse in distant space.

Boundless Stores of Energy

All the industrial triumphs of the present age have been possible because we have learned how to make intelligent use of the energy set free in chemical and molecular changes. We have, for instance, torn apart the molecules of coal by aid of combustion, and with a part of the energy thus set free we have made steam to turn wheels in factories and to propel cars. But nearly all the energy we have known has been molecular energy. Yet the atom is the seat of an enormous condensation of energy, vastly greater than any form of molecular energy; and the hurling of tremendous projectiles weighing many hundred pounds, for miles through space, by the molecular energy of a relatively small amount of modern explosives shows how great such energy may be.

Inter-Atomic Energy

With our new knowledge of the atom and with a positive knowledge derived from a study of radio-activity first studied in connection with radium, we can estimate the amount of this imprisoned energy. The results that come before us are absolutely astounding. Relatively it is millions—not ten, nor a thousand—but millions of times greater than the energy obtained by chemical reactions. Remember, we are dealing with the energy of particles traveling at the tremendous rate of speed of a hundred thousand miles a second or even more. Some of the most eminent scientists of the world, after careful study, tell us that in a common copper coin weighing one gram, is confined 6,800,000 horsepower. We have thus exhaustless stores of energy around us on every hand. The problem is to get at that energy. We have not yet solved that problem but leave it to the future.

Future Possibilities

However, prehistoric men did not know how to utilize the molecular energy confined in coal. It will probably be no harder for the learning of a future day to set free and utilize atomic energy. One of the greatest scholars of the day tells us that a race possessed of that secret could transform desert continents, thaw the frozen poles, and make the whole earth one smiling Garden of Eden.

Formation of Atoms

What can be taken apart was some way put together. Researches intended to clear up thought in this direction tend to a mental uplift that floods the mind with great thoughts. The veil seems lifting, we catch fleeting glimpses of processes beyond the capacity of the human mind to understand. We dimly make out the outlines of a scheme of evolution that requires eternity to complete, omnipotence to control, omniscience to guide. (See "Atom" 189; "Electron" 933.)

The Evolution of Matter

Let us consider the possible conditions in such a formless nebulae as that in Orion (1975 and Circulation of Matter 4287). As we are dealing with the motion of particles at a tremendous rate of speed, we can well understand the presence of various forms of energy,—light, heat, motion. We are already, however, in the presence of mysteries, impossible to understand with our present knowledge. We do not know what the electrons of negative electricity are; furthermore particles of positive electricity are present. It is impossible for us to understand what power it was that thus divided the primitive first-form of matter into two great divisions that by uniting form atoms.

Analogy

Here we must pause to point out a startling analogy. All through the kingdom of life in its two great divisions of animals and plants runs the dividing line of sex; two complementary principles, let us say, that must some way unite to give rise to new forms. It is surely a wonderfully expanding thought to learn that this same principle seems operative in the birth of atoms. An atom is the union of two primitive first forms of matter which for lack of better name we call negative and positive; and the entire process reminds us, in a way, of the great principle of sex. Lest it be thought this is fanciful read again the description of an atom (189), reflect that when atoms disintegrate they yield positive and negative particles (1975). These two principles must unite to form an atom. And some of our thinkers conclude that the nature of the atom (as many different kinds of atoms as there are elements) depends upon the number of negative electrons that unite with the positive particle and the formation into which they arrange themselves.

The Confines of Knowledge

So here we stand on the confines of human knowledge. We are not at the beginning; we never will be. We think, however, that given the two principles we can make out at least the outlines of an orderly evolution of the atoms of our elements. From their atomic weights, arranged in almost orderly sequence from one to two hundred and forty, and from a certain almost rhythmic returns to common characteristics in groups, we can make out great classes, genera and species of elements strangely reminiscent of like divisions of animals and plants.

Nowhere Fixity

The early Greeks with their keen intellect arrived at certain conclusions to which modern learning is returning. They taught there was one primal substance. We modify that by pointing out a two-fold division of that one substance—positive and negative divisions. They taught that everything was in a state of flux, a coming and a going. In the stars can be read the story of the birth and death of worlds and atoms (see Cosmogony). In our laboratories, we learn that whole classes of elements are passing away. All classes of radio-active elements are disappearing, to give place to more stable forms (Radium to Helium and lead). We are aware that entire classes of elements have disappeared (the ancestors of neon, argon, etc.). Nay, more, all elements tend to disappear, for all may become radio-active. And so in the infinite hereafter, our globe itself may dissolve and like an—

"——insubstantial pagent faded,
Leave not a rack behind——"

What These Facts Indicate

Make an earnest effort to grasp the significance of this statement. In the realm of life, we have discovered the sway of orderly evolution. From the modifications of an original cell element were built up vegetable and animal forms showing increasing complexity of design. Do we not discover a similar process in the world of matter? Thus through all nature one general plan of procedure is in evidence. Grasp this thought, for you can form no higher concept.

Outline for Study of Chemistry

I. **Changes in Matter**
   1. Physical. Give illustration.
   2. Chemical. Give illustration.

II. **History of Chemistry**
   1. Early Ideas as to Atoms (563).
   2. One primal substance.
   3. Theory of Alchemy.
   4. Theory of Phlogiston.

III. **The Atom Theory** (190)
   1. Atom, Definition of (189).
   2. Molecule, Definition of (1887).
   3. A Chemical Compound (564).

IV. **An Element** (957)
   (Give names, symbols, and atomic weight of several.)
   1. Classes of Elements.
      1. Metals (See Metallurgy 1824).
      2. Metalloids. Ex. Calcium.
      3. Non-Metals. Ex. Oxygen.

V. **Divisions of Chemistry** (564)
   1. Organic Chemistry (Chemistry of Carbon Compounds).
   2. Inorganic Chemistry (The study of elements and their compounds).
      1. Qualitative Chemistry.
      2. Quantitative Chemistry.
      3. Physical Chemistry.
      4. Electro-Chemistry.

Questions

What is the difference between an atom and a molecule?

Can you speak of an atom of electricity? (933).

Is chewing food a physical or a chemical change?

What about the action of the saliva?

Is the action of the stomach a physical or chemical change?

Is air a chemical compound?

When your knife rusts what sort of a change is it?

Refer to outline on sugar, p. 4299. Does the chemistry of sugar belong to the organic or inorganic chemistry?

What chemical action goes on day by day in a leaf? (3532).

Why will not safety matches light by any kind of friction? (1798).

Why can we wash better in water from a cistern than from a well? (3631).

How does yeast cause bread to rise? (3181).

Why do we use soap to wash our hands? (3543).

What causes foam on sodawater? (2681).

A great many of our common elements are said to exist in the sun. How do we know? (2718).

From your knowledge of atoms, why is it that in extremely hot stars, we find but one or two elements present? (4156).

This is the composition of a molecule of water—H_2O. What is the relative weight of the molecule (add the weight of the two elements)?

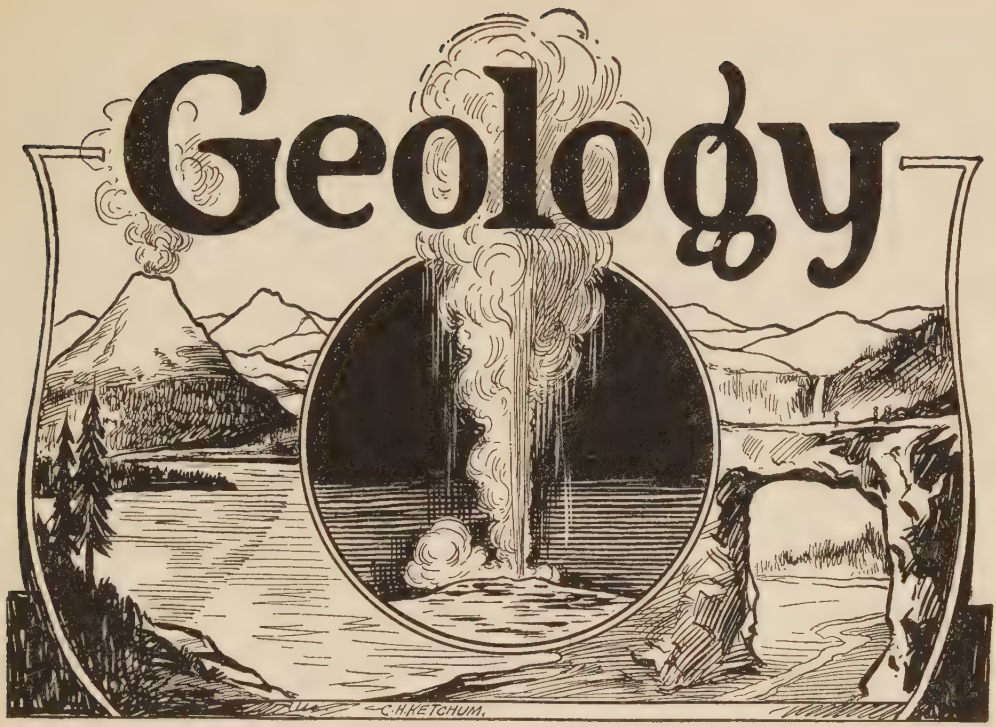
H_2SO_4 is a molecule of sulphuric acid—what is its relative weight?

Assuming that in any given quantity of air there are only the two principal gases present, what is the relative weight of the two gases in that volume of air?

Does the air you breathe effect a chemical or a physical change?

For other Questions consult Question Department.

Geology



Geology has to do with the history of the development of the crust of the earth; the successive stages of this development are to be ascertained by a study of the strata of rocks and ancient surface formations exposed as a result of uplifts and the action of denuding agencies. The successive stages reached in the development of life, plant and animal, shown in the fossil remains, serve as a check in the main study.

Value of Geology

The value of any study depends on the exercise of and consequent increase in strength of mental faculties—we might say mental muscles—used in its pursuit. Even a slight acquaintance with the elements of geology awakens curiosity, arouses interest, strengthens observation, and lifts the mind to higher planes of thought. All this better fits one for the life of intense mental activity of the new age now opening. In addition glimpses of a new world of wonder and beauty and interest are revealed. The pebble beneath your feet has a story to tell; the quarries become volumes with a history more wonderful than any ever penned. We have, accordingly, prepared this outline study, but it is an outline only; details are found in numerous articles in these volumes.

The Size of the Earth

We have referred to different theories concerning the origin of the sun and solar system. Whatever theory be ultimately accepted, we are certain that on size alone depends the ability to develop or at least to retain heat, and consequently to retain a molten (liquid) or gaseous state as a whole; also the ability to develop, or at least retain, an atmosphere and a large volume of surface moisture. These three agents,—heat, air, water,—are the ones principally concerned in geological changes, even the development of life depends on them. Let us simply say that the earth was of sufficient mass to de-

velop or retain a molten condition over the surface—or most of it—a fairly dense atmosphere and a large volume of moisture. Geology proper commences its study when the molten surface crusts over (or a large part of it) and the agents of change begin their work.

Geological Time

In our article on astronomy we show how necessary it is to enlarge our concepts of space, of size, and rapidity of flight of heavenly bodies. Estimates that a few years ago would have been considered ample are now seen to be utterly inadequate. It is so in regard to geological time. Present day theories bid us consider stretches of time absolutely appalling in their duration, when compared with the liberal estimates of former years. There is only one precaution to be observed,—where so little is absolutely known we need not be positive in our statements. As far as our human intellect is concerned, we are considering the results of eternity; and so no matter how slow acting a cause may be we can, with confidence, appeal to it since there has been time sufficient to produce the greatest known effect.

The Action of Internal Heat

The internal heat of the earth is not such an active agent as many suppose. It was, of course, responsible for the molten surface of the earth, or at least a molten condition over a large part of the original surface. At present, a large part of the earth's surface is liquid (water) that collects in depressions on the solid surface (the ocean beds). It was the same in the immensely long ago, only the liquid was lava and it probably covered the entire surface, but doubtless deeper in some parts than in others. And then the molten surface "froze," that is to say it solidified, owing to the escape of heat. If there was any shore line to the molten sea, the solid lava formed along such shores, just as ice forms on shores of lakes and ponds.

The Frame-Work of North America

Some think there were such original shore lines, V-shaped in North America, and that these shore lines represented the outline frame-work, the immovable foundation, of the western continent; one arm of which extended westerly from the eastern highlands of Canada; another, southwesterly along the Appalachian Highlands of eastern United States. (See 3049.) Of course, the original projecting surface was long, long ago worn down, leaving, for instance, in Lake Superior region the immense, rusted down, partially re-cemented heaps of debris of the iron meteoric surface. This view is admittedly theoretical, but it is not purely fanciful. It may be regarded as an effort by earnest scholars to explain the development of North America (confining our attention to that continent) in accordance with a few known facts. Make an earnest attempt to grasp this mental picture.

The Floor of the Continent

But no considerable area of solidified crust could be added before such sections were subjected to the action of hot air, doubtless blowing with hurricane velocity, saturated with steam, armed with chemicals long since parted with. Later still hot water would add its denuding force; the result was a rapid wearing down, or weathering of the surface and the formation of deposits of lava debris; but that caused the original surface to sink here and there and permitted fresh outbreaks from beneath. Hence it is that so much of what we call primary, igneus rock, after all, shows evidence of being formed from older sedimentary rocks. And so for an immensely extended time, the struggle continued; ended finally by the formation of a crust over the originally molten surface of the earth, the floor of our continent and ocean beds doubtless broken through at numerous places exposing the molten lava beneath, just as today we see the lava at Kilauea. (See p. 1284.)

Subsequent Modification

The article "Geology," p. 1146, should now be read with care. When the above stage was reached the cycle of changes began that have ever since been at work,—the denuding forces of air, of water, of ice,—constantly working over and modifying the surface crust. These changes were accompanied by troubled movements of that crust partially due to the imprisoned heat seeking an outlet; and, also, to the fact that the entire surface is in a state of tension, and constantly seeks to adjust itself to a varying stress,—here folding and crumpling the surface, there elevating the folds into mountain ranges, then gradually sinking beneath the down pressure of oceans. In places, the tension causes a sudden break in a strata (see "Fault" p. 1006), known as a fault, perhaps such a sudden adjustment causes a destructive earthquake (see p. 885); but in most cases the crust accommodates itself to stress by a very slow yielding.

Stable Conditions

When once a solid crust of great thickness had formed and land and ocean divided the surface, the planet entered on an immensely long period of surface developments, which still continues, under circumstances that have remained substantially the same from the earliest times to the present, and will probably continue unchanged for unknown ages. To illustrate, climate has not been greatly modified as a whole. Of course, there have been local changes; there doubtless will be such changes in the future. Plants of temperate zone have grown far to the north; they may do so again. We are certain of glacial conditions in present temperate regions at a recent time; such conditions may return. We are sure there was more than one such period in the past. The winds have always blown with about the same force, subject to the same conditions as now, but, of course, modified by the local disposition of land and water masses. The rain drops were of the same size (we find their old markings), they struck the surface with the same force. Sand was formed under the same conditions as sand is forming now. Extensive areas of surface were arid and desert as they are today, but not the same sections as today. Volcanic and earthquake action have remained about the same with this understanding,—there have been periods of activity and periods of quiet. We are living in a period of comparative quiet,—it may be followed by a period of activity. And so for countless ages, the elements of change remained the same as at present. These elements are the action of air, of water, of ice, and the results of crust motion due to crust tension.

The Action of the Atmosphere

The atmosphere has effected great changes in surface mainly by transporting sand. In the arid sections of the West, sand-stone cliffs have been etched away, and rounded hills left standing here and there. In desert lands, the entire soil formation may be blown away. Old desert plains with rock floors are said to cover thousands of square miles in South Africa. Great ridges and hills of moving sand, called dunes, characterize certain sections, as around the south end of Lake Michigan. Some idea of the immense work of air in transporting sand and dust may be formed when we reflect that in some sand storms more than one hundred thousand tons of materials are carried in one cubic mile of air. In China, vast plains of loess deposits, hundreds of feet in thickness, are supposed to be composed of soil materials blown from arid sections hundreds of miles to the west. In many others ways the atmosphere is an active agent of change. Give it millions of years in which to do its work the result may be very great.

The Action of Water

But running water on the surface and in the form of subterranean streams, springs, and seeping water, is the great

agent in working over the surface exposed by the receding seas or thrown into mountains, plains, and hills, by the troubled movement of the crust in turn caused by stress throughout its mass. As every one knows, all rivers tend to sink their valleys to the sea level. It makes no difference how small or how large and complicated by branch streams such a valley may be, it has reached its present form by long continued action in the past.

The Effect in Time

It has been estimated that, on the whole, the level of the Mississippi Valley is lowered about one foot in 3500 years. The Ganges sinks the level of its valley one foot in 2000 years. If conditions remain as they are, a comparatively few million years will see the larger part of the continents disappear in the sea.

The Opposing Force

But such a result will not be attained because the billions of tons of material carried into the sea every year constantly change the tension of the crust. The crust seems to us solid. It is however in a state of constant tremor. Delicate instruments (called Seismographs) note a difference in the movements due to such apparently insignificant causes as heavy rain storms some distance away. We should reflect that a rainfall of one inch means a deposition of over 100 tons of water on an acre. From this, you can estimate the weight deposited by a storm covering hundreds of square miles. In the case of material carried into the sea, the changed stress will cause sinkings here and risings there. This in turn will develop heat, increase volcanic activity and earthquake action. And thus the ceaseless struggle continues between the levelling influence of water on the one hand, and the elevating influence of causes at work in the crust on the other.

Divisions of Time

Without going into detail it is sufficient to say that scholars have attempted to divide geological time into ages, characterized by the prevailing type of life. We determine what that type was from a study of fossil remains (see "Fossil," p. 1073). Various schemes of ages and periods have been attempted. One of the best is that given on page 1148 in vol. 3 of this Reference Work. As it is desirable to have the main features of this scheme fixed in mind we will note the characteristic features of each of the Eras or Ages, beginning with the most ancient in time.

Archean Time

This includes that long period of time during which there could have been no life, as we understand the term, on the globe. We have no means of determining how long this period was. Manifestly no life could have existed until the surface crust had formed, virtually, over the entire globe; the waters precipitated from the over-burdened atmosphere; and thus the shells of clouds dissolved, and the new planet looked forth on the universe. Not until all this had taken place could life, as we know it, begin its career of gradual unfoldment. All this must have required the passage of a well-nigh infinite series of years. Towards the close of this extended period of time faint traces of life appear. But this was not life as we are apt to think of it. No nodding flowers were kissed by the sunshine of that early time. The earliest forms of flowerless plants, such as sea weeds, and, in dry places, lichens covering rocks, were the highest forms of plant life. It is doubtful whether any forms of animal life were present, but if so, they were simply structureless bodies. Such was the immensely long period of time, doubtless many times longer than the time that has elapsed since its close, known as Archean Time.

Paleozoic Time

Paleozoic means old life, so Paleozoic Time means that portion of time charac-

terized by the presence of those life forms, both animal and plant, that we recognize as crude, old in the sense of time, not well developed. This period witnessed the wonderful development of plants which produced the great beds of coal that we have to-day. There was a great profusion of flowerless plants, all over the temperate zone, great tree ferns, thirty feet or so in height, were growing; such species now, in the warmest portion of the earth, only grow a few feet high. Some varieties of rushes that now grow a foot or so high had representatives in the marshes of the coal measures standing thirty feet high, with woody trunks. Not until near the close of this period do we find evidence of the presence of flowering plants. But pines were growing in the coal measures.

Advance in Life

A similar advance in animal life is noted. Invertebrate animals were largely represented; not until toward its close do we meet the backbone animals, such as fishes, amphibians and reptiles. We are to note that the earlier forms of animal life were all water forms; not until the closing portion do we find air-breathing animals. In the forests, we would have seen none of the beautiful flowers we associate with tropical vegetation to-day. In the branches of the graceful tree ferns we would have looked in vain for birds; they were far in the future. None of the higher forms of life were present. There was not a single representative of the class Mammalia. There were fishes in the waters, but not the fishes of to-day. There were some amphibians and reptiles in the marshes, but they were unimportant. This period of time was also immensely long, probably far longer than all the time that has elapsed since its close, though it was but a fraction of the time represented in the first period.

Mesozoic Time

Mesozoic means middle life and Mesozoic Time is that portion of time in which the prevailing life forms were intermediate in character between the old forms and those of the present. Great geographical changes ushered in this period and put an end to the conditions under which old life forms had been developed and in which they flourished. Changed conditions demanded new life forms. The abundant flowerless vegetation of the coal measures of the preceding epoch dwindled away, flowering trees increased in number and importance, and in the closing portions of this period we have trees with deciduous leaves. A great many of our present forest trees had representatives in the forests of that time. Palms and trees akin to the big trees of California were growing side by side.

The Age of the Reptiles

Of animal life there were many strange forms. It was the age of reptiles. They domineered on the land, in the air, and in the sea. On the land stalked huge reptiles, fifty and sixty feet long, which, when standing erect, must have been at least thirty feet high. Some of these huge creatures were carnivorous, living on other animals. Others fed on the foliage of trees. In the air, huge reptilian bats, veritable flying dragons, with a spread of wings from ten to twenty feet, disported themselves. In the sea there swam great reptilian whales, seals and walruses. Birds made their first appearance during this period, and here we obtain a clear view of nature's methods: the first birds were simply modified reptiles. They had long, jointed tails and bills well supplied with formidable teeth. Finally, it is in the rocks of this era that remains of the class mammalia make their first appearance. This period of time was doubtless long continued.

Tertiary Time

All the time that has elapsed since the close of the Mesozoic Time is known as the Cenozoic Time. This means the time of new life forms, and included animals and plants, like unto those at present living. Owing to its importance, it is

subdivided first into the Tertiary Age. Tertiary means third; that is, it was the third period of life forms from the Archean Time. The Tertiary Age is also known as the age of mammals. To the class mammals belong the most highly organized animals, and they have been the ruling type of animals since Mesozoic times. In the forests of the Tertiary Age, all our present trees were growing, oaks, poplars, maples, hickories, etc. The climate was mild far to the north. Palms were growing in the upper Missouri region; England was decidedly the land of palms, no less that thirteen species were growing there, and there were at least seven species growing in Switzerland, and one variety grew as far north as Northern Germany.

Higher Forms of Life

There was a great increase in all the higher forms of life. Whale-like animals were especially abundant in the sea. On our western plains were animals like the tapirs of India and rhinoceros-like animals as large as elephants, and diminutive little animals not larger than foxes, from which have come horses. Quadrumana, or apes, were living in Europe. Mastodons and other huge animals of the elephant type were also common. Birds of all kinds were abundant. Finally, and more important than all, man made his appearance at least as early as the close of the period in question.

Recent or Quartenary Times

All the time that has elapsed since the close of the Tertiary Age is known as the Quarternary (Fourth) or recent times. It includes the present. But here again the whole stretch of time included in this term is of immense duration and extends over many thousands of years. Before noticing its distinguishing characteristics, we should by way of review grasp the fact that all through the various ages there was a slow and orderly advance in life forms. From sea weeds to the giant sequoia; from structureless cells to man.

The Glacial Age

The Quarternary Time is still further subdivided, and in the first division we find that remarkable period known as the Glacial Age. It is on the whole the most mysterious period in our planet's history. For some reason, probably the continued elevation of the land to the north, the mild and genial climate of Tertiary times, when palms were growing far north in the United States and Europe, when Greenland and Spitzbergen enjoyed temperate conditions, passed away and true Arctic conditions, like those prevailing in Greenland to-day, replaced them.

In This Country

Just as Greenland is smothered beneath a huge ice sheet, so Europe as far south as Italy and Spain was covered by a desolating layer of ice. In the United States, ice, most of the way at least a mile in thickness, covered all the country as far south as the Ohio River, as far west as Indiana, where it curved to northern Illinois, thence west to the great plains and the Rocky Mountains.

Explanation

The fact is unquestioned; the explanation is obscure; the time in years since these conditions passed away is not definitely known; probably, comparatively, but a few thousand years ago, some would place it at ten thousand years or less, other geologists much farther away in time. Its gradual coming on from the close of Tertiary Age can be traced in the vegetation of the period just preceding the Glacial. This period was probably very long. The continuance of glacial conditions was doubtless many thousand years. When it passed away, the present age in geological history began.

The Future

We have no reason to suppose the cycle of changes is complete. There will be geographical and climatic changes in

the future. There is, however, this difference. Man has appeared as the fitting climax of all that preceded him. No higher order of life will appear; improvement will show itself in improved men; that is, increase in knowledge, enlightenment and civilization. He has advanced in all these directions with great rapidity in recent centuries. Man is endowed with reasoning powers and can thus assist nature in her selective work.

Assisting Nature

This we are now doing. We are assisting nature in developing new species of vegetables, fruits, grains and grasses. We are developing those that can stand arid conditions, that can adjust themselves to colder latitudes than their natural home. The same is true of animal forms. By assisting nature in her selective work, we produce new varieties of domestic animals. Thus we are learning how to guide the evolutionary forces of nature. In various ways we are learning how to rise superior to climatic conditions. We are making more and greater use of irrigation to control arid conditions. Why can we not in some way control climatic conditions? This is at present a dream of enthusiasts. It may some day be a reality. It does not seem a more difficult thing to do than would have seemed the enlightenment of this steam and electrical age to the man of several thousand years ago.

Possible Advance

What wonderful results have followed the discovery of a way in which to utilize the inter-molecular forces of nature stored in the immense coal deposits of an earlier age! Who can estimate the more marvelous advance that man can make should he learn how to ultilize the boundless stores of inter-atomic energy concerning which the mysterious actions of radium give us a hint? Why may we not hope some day to discover a process that will enable us to do this? And so we have reasons to look forward to a more glorified age in the future—an age of enlightenment which shall be a fitting climax to all that has preceded it; which shall as much exceed the present as the present exceeds the civilization of the past, or as the light of brightest day exceeds the mellow glow of moonlit night.

OUTLINE FOR GEOLOGY (1148)

I. General principles.
   1. Definition of Geology
   2. Value of Geology
   3. Geological time

II. Geological factors depending on size of the earth:
   (a) Heat sufficient to liquefy a part at least of the globe
   (b) Ability to generate and retain an atmosphere
   (c) Ability to generate and retain surface water

   Note. These results follow from the most approved theory of the earth's origin today. They do not follow if the Nebular Theory as originally promulgated be retained, except that ability to retain air and water will still depend on the size of the globe.

III. Primitive conditions of earth:
   1. Molten surface and reservoirs of molten lava
   2. The frame work of the continents
   3. The encrusted surface

IV. Agents of Surface Change:
   1. The yielding of the crust to stress, caused by—
      (a) Imprisoned heat
      (b) Changing burdens on surface the result of shifting deposits caused by the action of air and water
   2. Resulting in
      (a) Volcanic action

(b) Mountain forming by flexure of surface

V. Denuding forces on the surface:

1. Air
   (a) Moving sand
   (b) Removing desert surface
   (c) Formation of Loess deposits
2. Water
   (a) Sinking of river valleys Removing of material of same to sea
3. Ice—Action of glaciers

VI. Divisions of Geological Time:

According to advance of life

1. Archean time
   (a) The crust forming, re-arranging, and solidifying period
   (b) Rudimentary beginning Of plant life; perhaps animals also
   (c) Duration—Extremely prolonged
2. Paleozoic time
   (a) Silurian—Age of Invertebrates
   (b) Devonian—Age of Fishes
   (c) Carboniferous—Age of flowerless plants; formation of coal
3. Mesozoic time
   (a) Triassic—Age of Reptiles
   (b) Jurassic—Bird forms of life
   (c) Cretaceous
4. Cenozoic Time
   (a) Tertiary time
      1. Eocene—Old life forms
      2. Miocene—Recent life forms
      3. Pliocene—Age of Man
   (b) Quaternary
      1. Pre-glacial Age
      2. Glacial Age
      3. Post-glacial Age

Questions

What explanation can you give for lack of air and water on the moon?

A crust seems forming over the planet Jupiter. What geological age does that represent?

The contour line of Mars shows the surface is remarkably level, as far as development is concerned, is Mars older or younger than the earth? Your reasons.

As compared with the earth, Mars has a thin atmosphere and comparatively a very small supply of water. What is the explanation?

There are immense salt beds near Salt Lake. In the Silurian Age similar deposits were formed in what is New York, Michigan, Kansas and other states. Do you think they were formed in the same way as those in Utah? Then what picture can you form of conditions in the central part of the United States in the Silurian Age? Utah is now very dry. Did such conditions prevail in the sections mentioned? Complete the scene. What time do you think that required?

In after ages coal was formed in many places in the same section of the United States. Conditions must have greatly changed. Describe the changes.

Did the ice of the Glacial Age enter your state?

Are there any boulders scattered over the section where you live? How did they get there?

Suppose a storm precipitates an inch of water all over your front lawn, what is the weight of the water?

Once New York state was covered by ice several hundred feet in thickness; much of Alaska is similarly covered now; do you think Alaska will be free of ice as New York now is?

For other questions concerning Geology, see Question Department.

Physics

We have been considering elements, the various combinations of which have resulted in the forms of matter constituting the material world (see 1800). Many interesting questions concerning matter as a whole, the peculiar properties of certain substances, and strange facts connected with matter in motion should now be considered in order that we may, at last, form an outline picture of the inanimate world whose birth, growth, and development to its present complexity we have been considering. This further study will more strongly impress the thought that before us is an unknown sea, that the wisest men are

" . . . children, evermore,
Simply playing on the shore."

Influence of Matter on Matter

As this is to be only an outline study of the properties and behavior of matter in general, we will first note the general fact that there are two opposing forces active in the realm of matter. One force tends to draw material substances near to each other. Ancient philosophers knew the reality of this force. Modern scholars call it attraction. It has received different names according to its field of action.

Attraction of Gravitation
(See 1217)

This is the name of the force by which bodies separated by an appreciable distance tend to approach each other. All we know about it is its mode of action. Summed up as follows:

Every particle of matter in the universe attracts every other particle with a force (1) directly proportional to its mass; (2) inversely proportional to the square of the distance separating them (1217). It is absolutely universal in its action. Weight is a measure of this force due to the attraction of the earth. We can with confidence apply the same principle to other planets of our system and say how much you would weigh on Mars, on Jupiter, or on the Sun. More than

that, the motions of the stars unthinkably distant from us are seen to follow the same law. It is an impressive illustration of the reign of natural laws that knows no bounds. (See also Adhesion, 20; and Cohesion, 64.) The essential nature of attraction in all cases is the same. It has received different names according to the distances separating the particles between which it acts.

Illustrations

Suspend two large iron bars some distance apart by wires. Attraction of gravitation tends to make them approach each other. The force is, of course, very small; we cannot measure it unless recourse is had to extremely delicate experiments; but we are certain it exists (see 1217). We throw a handful of water on the bars, some water clings to them. That illustrates adhesion. The distance between the water and the iron is very small; we cannot measure it. It is doubtless great compared to the distance between molecules. We now heat the ends of the bars until the iron is soft and yielding. By hammering or pressure we force molecules so near each other that cohesion grasps them.

The Three States of Matter

As all know, matter exists in one of three general states,—solid, liquid, or gaseous (1800). It may not be so generally remembered that these states of matter depend upon the degree to which the power of cohesion is overcome. In a solid, say a piece of ice, the motion of the molecules of water has become so slowed down that cohesion holds them firmly together. We apply heat, that is to say we increase the motion of the molecules, the ice begins to melt; the motion has become so rapid that the force of cohesion is largely overcome. We apply more heat, the force of cohesion is wholly overcome; the water passes into the form of vapor or gas. By experiments we discover that all the known gases can be made to pass into a liquid form, most of them into a solid form. It is simply a question of so slowing down the motion of molecules by pressure and loss of heat that cohesion can get them under its control, first as a liquid and then as a solid.

Outline for Study

In this outline we are to study the properties of matter, but not of energy, or matter in motion. For further details of the more important of these properties you are referred to this new, ten volume Reference Work. The value of such outline study is that it brings together and thus concentrates knowledge.

Matter

I. General Properties
   1. Extension
   2. Impenetrability
   3. Divisibility
   4. Porosity
   5. Indestructibility

II. Specific Properties
   1. Ductility
   2. Malleability
   3. Tenacity
   4. Elasticity
   5. Hardness
   6. Brittleness

III. Influence of Matter on Matter
   1. Attraction
      (a) Gravitation
         1. Laws of
         2. Universality of
      (b) Adhesion
      (c) Cohesion

IV. States of Matter
   1. Gaseous
   2. Liquid
   3. Solid
   4. On what these states depend

Energy

But physics is not only the science of matter, it is also the science of motion or, as it is generally called, energy; for energy is simply the capacity of bodies in motion to do work. On investigation

we discover that there is no such thing as rest in the universe, except in a relative sense. We cannot possibly account for the origin of energy any more than we can for the origin of the elements of primal matter. Astronomical bodies are in motion, some in very rapid motion; it is useless for us to ask what caused or induced the motion in the first place. We have learned, however, that the total amount of energy in the universe is a constant quantity; it cannot be added to nor subtracted from, though we can change its form. What we can do, nature does on an immensely larger scale and thus human advance is possible. (See Energy and Conservation of Energy, p. 955.)

Source of Earth Energy

Though it is impossible for us to comprehend the original source of energy, we can make out the source of energy that we use on the earth. That source is the sun. We make use of the energy of falling water to generate electricity and set it to work in countless ways for human good. But there would be no water to fall had not the sun evaporated it from the sea and the winds wafted the vapor over the land; and there would be no wind had not heat from the sun caused the wind to blow. We make extensive use of heat derived from burning coal wherewith to generate steam which, in turn, we use to move machinery, perhaps to generate electricity. But we obtain from coal only what the sun stored in coal ages ago. And so we can pass in review all sources of get-at-able energy on the earth and it traces back to the sun.

The Sun's Energy

The sun, then, is the great source of energy which comes to us as light, heat, and electricity. But the earth intercepts only an exceedingly small fraction of the boundless stores of energy that flood into space every second of time, from every inch of the sun's surface. But the sun can only impart what it some way receives; so how does the sun renew his ample supplies of energy? That question has been answered. It is the energy of falling particles. Under the influence of gravitation all particles on the sun's surface tend to fall to the center of the sun. There is such an inconceivable number of them, their aggregate weight is so inconceivably great, that even if they fall (the sun's diameter shrinks) only about fifty feet a year, the supply of energy remains constant. We thus have traced all energy back to the operation of the great force in nature called attraction.

The Dispersive Force

But let us push our question still further. Particles could not be drawn together unless they previously existed some way dispersed in space. There must have been a force opposing attraction. That force in some way put in motion all particles of primal matter. It is useless to seek the origin of the dispersive; it exists as a fact in nature.

The Confines of Knowledge

We have once more reached the confines of human knowledge. There seems to be but two forces in the universe,—attraction and repulsion; neither of them can be understood. Many centuries ago ancient Hindoo philosophers in some way reached the same conclusion. They spoke of the outbreathing and inbreathing of Brahm, known as the Great Breath. (Consult article, Mythology.) But what advance have we made? The infinite activities of an unknown First Cause, manifesting in two different, yet complementary ways, are all that finally remain when we seek explanations for the world that we see around us. With all our seeking we have not accounted for infinite intelligence which orders all things. That must also be an attribute of the Great First Principle.

By Way of Review

It is well to pause and mentally review the series of articles bearing on the devel-

opment of atoms, worlds and life. Everywhere we observe that results seem due to the co-working of two opposing yet complementary forces. Are we considering the formation of atoms? The negative electrons unite with the positive particle, the different kinds of atoms seem to depend on the number and arrangement of the negative electrons. Are we considering different forms of matter? Chemistry shows that there are comparatively few elementary substances; the great majority of substances being formed by the combination of various dissimilar atoms; and, further, atoms themselves are formed by the union of negative and positive forces. When we turn to botany and zoology we discover that through the entire realm of life runs the dividing line of sex,—two opposing principles whose union advances life. And now we discover that the earth itself, everything, depends on the workings of two opposing forces,—attraction and repulsion. We can but marvel at the beautiful simplicity, yet marvelous efficiency, of the means Nature employs to build the universe of things.

Experiments

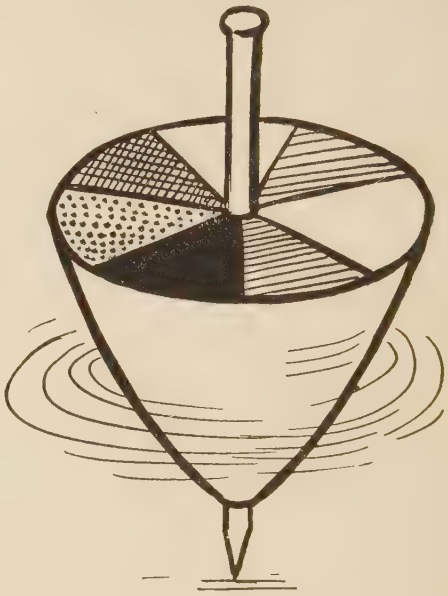
We have prepared a series of experiments, very easy to perform, but they illustrate properties and laws of matter and energy. We learn by doing. Every experiment suggests countless questions, and every question answered strengthens some mental muscle and thus prepares for practical life work. As the twig is bent, the tree is inclined; and children may be started on a great career because a thirst for knowledge and ability to demonstrate facts shaped the learning of childhood. All who wish to help youthful seekers on their way can assist by questions showing that truths of a practical nature follow from what the experiments demonstrate.

To Show the Composition of Light

Get a top, or make one, with a large, flat, disk top, similar in shape, but larger than, the childish top made from a spool. Cut triangular slips of paper, one for each of the seven colors. The slips to be of a size that will enable them neatly to cover the top of the disk. Revolve the top rapidly. The disk will appear white, or grayish white, depending on the neatness of your work, and the rapidity of spinning. Why does this result follow? May it not be that white sun light is someway a combination of these colors? Let us experiment.

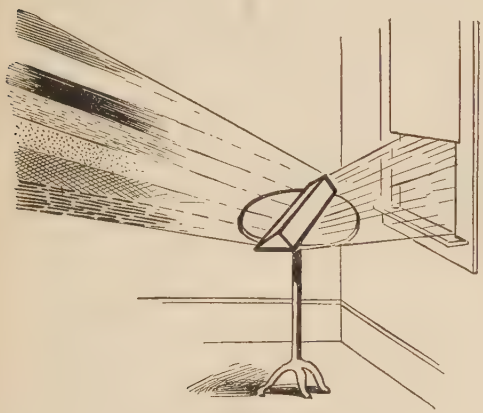
The Spectrum

Use as a prism an old-fashioned lamp drop, or if in winter time you can make



a prism out of ice. Darken the room if possible. Hold or place the prism in the window or where the sun light falls on it. The spectrum will appear on the opposite wall. Call attention to the fact that we have the seven colors of the slips used in the top. They must have been combined someway in the sun light. Many questions at once present themselves. Does this explain the rainbow? Why? Why does the prism separate them? Explain by the laws of light. Point out the use of the word v-i-b-g-y-o-r,—a means of remembering the

seven colors, and the order in which they appear. (Now see "Light," p. 1634; "Spectrum," p. 2717; Astronomy, and Rainbow. See also Curiosity Dept. 3545). Perhaps by a judicious mixture of two or more primary colors the other colors could be produced.



Combination of Colors

You can procure aniline colors at any drug store. Combine red and yellow, notice the result. Now combine yellow and blue, next red and blue. All shades and varieties of colors can be produced in this way. The three colors—red, yellow, and blue—are called the primary colors. Why? If they could be perfectly combined white would result. Perhaps this principle is of practical use in printing. Turn to the beautifully colored map of Florida (see Florida graphic), not counting the plate that printed the black lines, how many other plates were used? What colors were used in printing number 11? What to print the state flower?

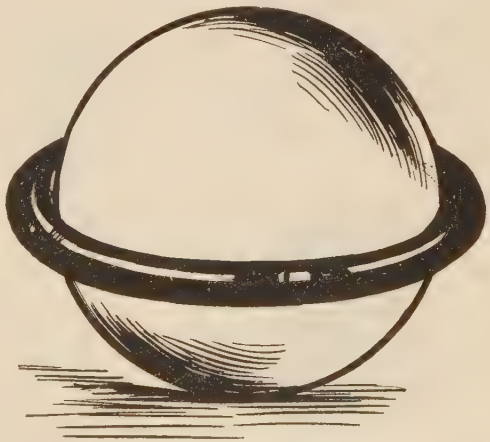
Other Experiments on Light

Use a mirror to illustrate reflection. What is it you see? Anything in the glass, or is it yourself. (See p. 3537.) What practical use of this principle is employed in sub-marine warfare? (P. 2781.) For refraction of light, try the experiment described in Astronomy. For diffraction of light (p. 827), try the following simple experiments:

Hold a fine needle close to one eye, the other being shut, look fixedly at it against any light object as a background; how many needles do you see? Countless experiments can be made with ordinary spectacles to show the concentration of light waves and to explain the principles of the microscope and telescope.

Experiments to Illustrate Action of Heat

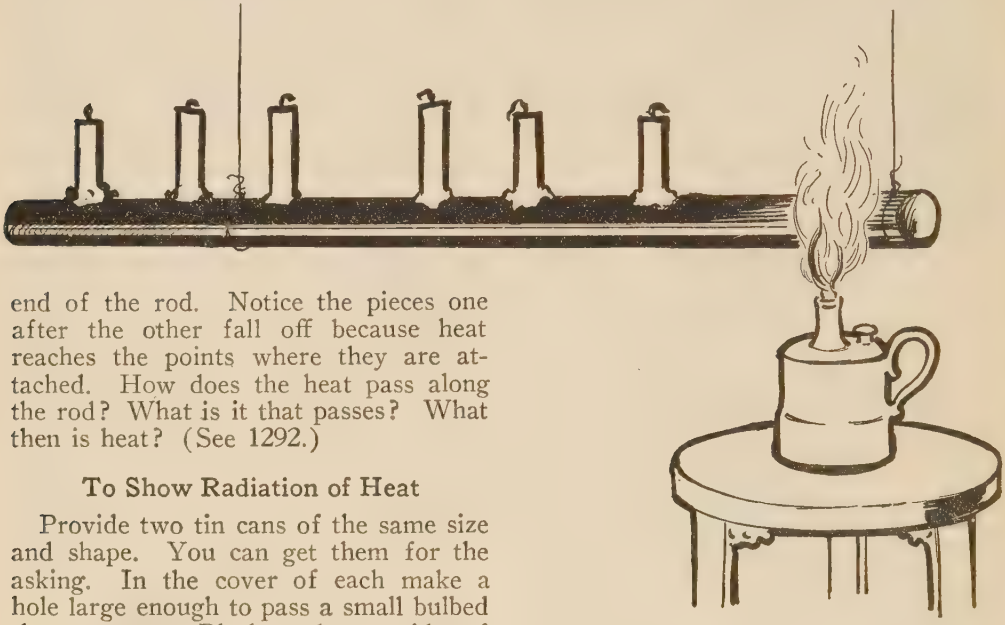
Procure an iron ring and a marble just a trifle too large to pass through the ring. Heat the ring over your alcohol lamp. The marble now passes through. The heat must have expanded the ring. Why is it that heat expands? (What happens to the molecules of the ring?) What force is slightly weakened? Can you prove that heat will expand air? How is it that you send up a toy balloon? If this be true, which will



hold the more moisture, a cubic mile of warm air, or a cubic mile of cool air? If, in turn, this be true, what is liable to happen when warm, moist air from the ocean meets a mountain range? Why does that result occur? Why is it that so much of Arizona is desert? (See 3541.)

To Show Conduction of Heat

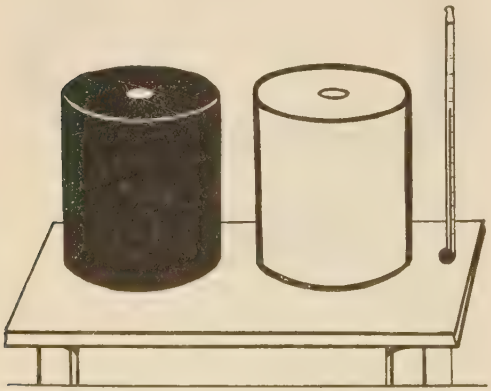
Suspend an iron rod by light wires or other means and attach along the rod small pieces of candle or other light substances by melting them to the rod. Now light an alcohol lamp placed under one



end of the rod. Notice the pieces one after the other fall off because heat reaches the points where they are attached. How does the heat pass along the rod? What is it that passes? What then is heat? (See 1292.)

To Show Radiation of Heat

Provide two tin cans of the same size and shape. You can get them for the asking. In the cover of each make a hole large enough to pass a small bulbed thermometer. Blacken the outside of one with paint or candle soot. The other is simply clean bright tin. Fill booth cans



with boiling hot water from the same vessel at the same time. Let them stand for a half hour. The thermometer admitted through the holes in the cover will show that the water in the black can has become the cooler, that is to say the blackened can has conducted heat more readily. If that is true, what colored material would make the cooler wearing apparel in the summer? But the same colored material would make the warmer apparel in winter, how do you explain such a statement?

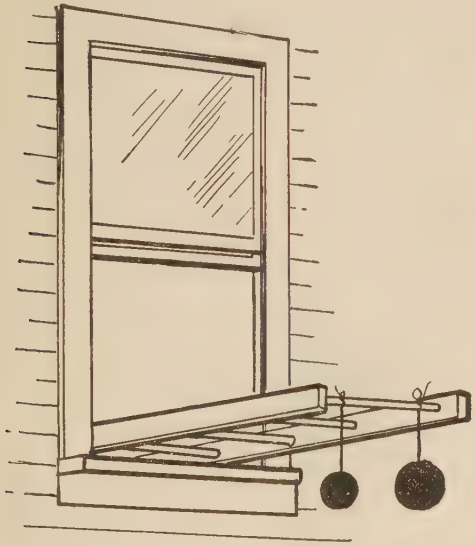
To Show Aerial Currents

Light a candle; hold it first at the top, then at the bottom of an open door leading into a heated room. Notice the different directions that the candle flame turns. Why does it turn towards the outside at the top of the room? (Recall what you have learned about the action of heat, air expanded, consequently lighter, hence rising to top of room, then forced out.) Explain the direction of the flame at the bottom of the door. What, now, is the general direction of surface air as you approach the equator? What is the direction of the upper air? (See "Wind," 3142.)

Freezing by Liquifying

Pour some water on the surface of a table. Place over the wet surface a tin

cup half full of snow or small pieces of ice. Throw in a handful of salt and stir the mixture with a stick. The ice in the mixture melts, but at the same time the film of water under the tin cup on the table freezes so that the cup is frozen



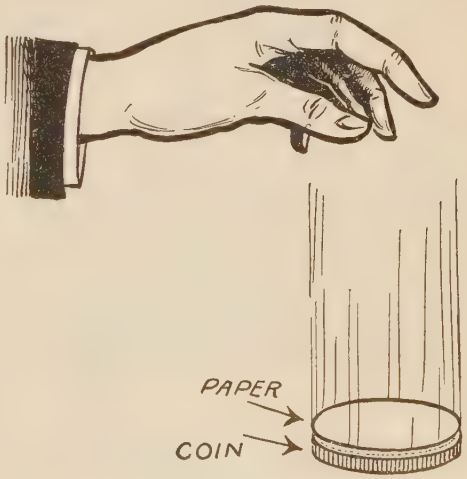
to the table. How do you explain this melting and freezing? Salt has such an affinity for water, that the ice draws heat from surrounding objects to allow it to assume a liquid form (to melt), that is, it withdraws heat from the film of water under the cup and that film freezes. On a hot summer day you often enjoy a product made by the practical application of this principle. What is that product? Now notice, for the ice to change to liquid heat must be acquired from some source, but the reverse must happen when water freezes. When snow begins to fall on a winter's day does that act warm or cool the air? And when snow is melting? Is the amount of heat involved in each case the same?

Freezing by Evaporation

Again dash some water on the surface of a common table, on the moist surface place a watch crystal. There will be a film of water under the crystal. Pour into the crystal sufficient sulphuric ether to half fill the crystal. (Procure the ether at any drug store.) Now gently blow the ether to hasten evaporation. It disappears, but the crystal is frozen to the surface. Work your way to an explanation of the fact. Heat from some source, then, must be supplied to a liquid to evaporate it. Now explain the use of Ammonia in manufacturing ice. (See 1409.) Why does street sprinkling cool the atmosphere? A rain storm in summer is said to cool the air. Is this cooling effect due to the falling rain? To the evaporation of water from the surface? To still a third reason? (See in Curiosity Dept. "What Causes Rain?" 3541.) What becomes of the heat that disappears (rendered latent) when you pass from a solid to a vapor? All you can do is to change the form of energy.

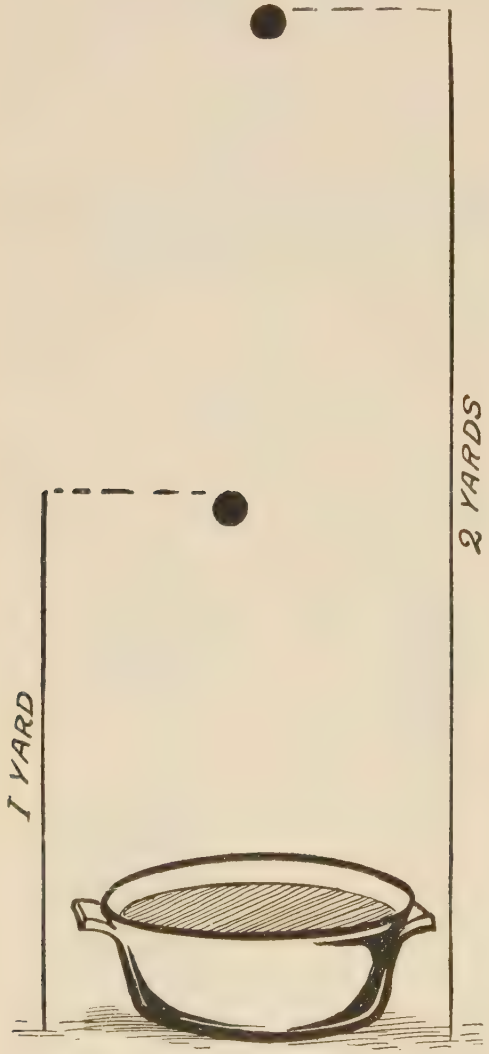
The Laws of Falling Bodies

From a window of an upper story, place a ladder so that it projects a short distance. Suspend from the upper rung by light cords a two-pound weight and a one-pound weight, allowing each to



hang down the same distance, say one foot. With a sharp knife, cut both twines at the same time. Which weight do you think will strike the ground first? What is the fact? This is Galileo's famous experiment with which modern science started. (See p. 1564.) In a vacuum

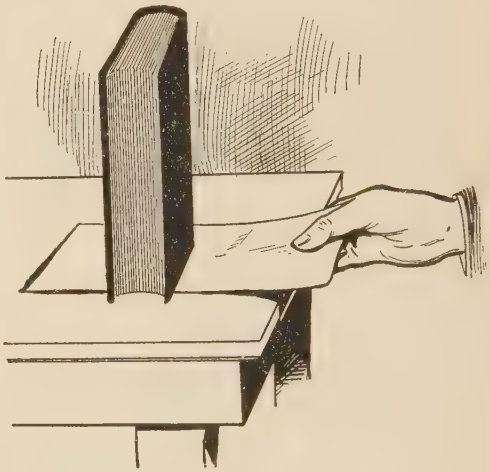
do you think a piece of paper, say as large as a silver dollar, would fall as fast as the dollar? Let us see. We will take a sheet of writing paper, lay a silver dollar on it, and cut out a circular piece



the same in size as the dollar. Lay the paper on top of the dollar, hold them both horizontally and suddenly release them. Notice the result. The falling dollar has created a vacuum in which the paper falls.

To Show Constantly Accelerated Motion

We read that the speed of a falling body constantly increases. Can you prove it? Take a pan. In it place a mortar-like mixture of fine clay or dough worked over and over until it is uniform in consistency. Do not make it too thick, have the surface level. Now drop one bullet from a height of, say, a yard, and another bullet, of the same weight, shape and size from a height of two yards. Notice the different depths to which they penetrate. As the bullets are the same in size, weight, and shape, the second bullet must have been going



a trifle more than twice as fast as the first one when it struck. (Now read "Laws of Falling Bodies," p. 1000).

Inertia

On a stand or table, we lay a sheet of ordinary writing paper. We stand a book on end upon the sheet. Taking hold of the free end of the sheet, gently pull it. See, the book advances with the sheet. Stop suddenly, the book falls over. Again taking the end of the sheet give it a quick jerk, as nearly at the level of the stand as possible. If you are dextrous in your movements, the book remains standing on the table. That illus-

trates inertia. The book in this case, any body in general, tends to remain in its state of rest or motion until acted on by another force. What do you think would happen if the earth were suddenly to stop turning on its axis? Suppose some outside force was pulling our globe —water and all—towards itself. The ocean water under that force being free to move, would tend to rise in answer to the force, would it not? The solid

body of the globe would answer that pull also. But how about the inertia of the water on the other side of the globe? Would it not stay where it was though the globe was drawn away? (Now read "Tides" p. 2886.)

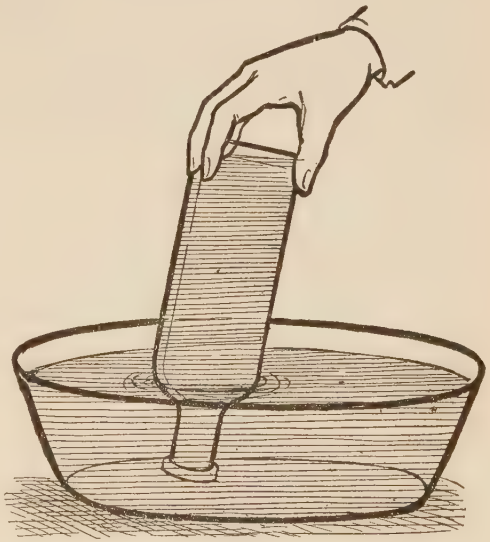
Capillary Attraction

Hold a lump of sugar lightly between the thumb and forefinger, let the under surface of the lump rest on the surface of water in a glass. Observe how quickly the lump is saturated with water. That force is capillary attraction. Probably every time you write a letter you make a practical application of the principle. How? With what? This morning when washing, I carelessly left the towel hanging with one end in the wash bowl; what did I discover on returning an hour later? Is there anything about growing vegetation that shows the presence of this force?

Experiments with Air

To Show Compressibility

Here is a tumbler and a basin nearly full of water. We invert the tumbler, and holding it perpendicular, we immerse the top in the water. But little water enters the tumbler. Holding the hand steady, press the tumbler into the water until it is about half way down. No air has escaped (if the tumbler has been held steady) but now it is only half filled with air. The original air has been compressed. But it requires some pressure to hold the tumbler. So the volume of the air depends on pressure. Perhaps that is true with all gases? (See Boyles Law, p. 1134.) But the air is pressing equally in all directions, the point would soon be reached where you could not force any more water into the glass. Try it with a glass fruit jar. This proves that the more air (or any gas) is compressed the more pressure the air exerts. In olden times what device, used to assist in work under water, depended on this principle? (See 836.) At present how is that principle used to control the



motion of railroad trains (p. 41). Many very practical tools depend on this principle. Name some. (2281.)

Air Pressure

But all air on the surface of the earth is compressed by the weight of the air above it. It must exert pressure. We will continue our experiments. We will lay a bottle in a vessel of water. The

bottle is soon filled with water, the air passing out. We now lift it out of the water keeping, however, the mouth of the bottle under water. See, it remains full of water. Why? The pressure of the air on the surface of the water in the dish is communicated to the water in the bottle and holds it there. We will vary the experiment. Take an empty fruit can, fill it with water, stretch a piece of mosquito netting over the open end. Place a piece of writting paper over the netting; invert the can, then draw the paper horizontally from the end of the can. The water does not run out. Why? A very common and necessary piece of mechanism depends on this principle, describe it. (P. 2371.) On the top of a high mountain would the air pressure be more or less than on the surface? Why? The planet Mars exerts far less attraction than the earth. Is the atmosphere of Mars more or less dense than our atmosphere? Why? Our aviators frequently ascend four miles in the air, why do they take cans of oxygen with them?

Electrical Experiments

Rub a lamp chimney or a glass tube briskly with a piece of flannel, bring near it small pieces of paper, notice the attraction. On a clear winter's night walk briskly up and down your room, shuffling your feet on the carpet, touch your finger to a gas jet. Observe the spark. Have you a cat in your home? Try stroking her fur in a cold dark room. Put a silver spoon between the gums and upper lip, and a piece of zinc between the gums and lower lip. In a few moments, bring the two metals together. Taste anything? See any flash? In one of these experiments, the electricity was due to chemical action. Which one? Aside from intensity is there any essential difference between the spark you produced and a flash of lightning?

Suggestions

These are but few experiments that can be shown at home or in the school room. There is not a principle in physics that cannot be illustrated by experiments such as here advised. Faraday (1002) says that every law in physics can be illustrated by a lighted candle. By it you can demonstrate the action of heat in changing a solid to a liquid, then to a gas. All forms of attraction are shown, also the laws of combustion and chemical change. We go through life with our eyes shut to common things. Let us learn to observe, to reflect. Faithful in a few things, we may hope to become masters in many, and our life will become more complete as we sense the wonderful sweep of nature's few and simple laws.

Outlines

To give completeness to your study of physics, you should consult the correlated list of subjects under this head in the Topical Index, studying each under its title in the Reference Volumes of this new, complete Reference Work. Also study the questions in the Question Department. The following outlines will systematize the entire subject.

Study of Gas

I. **Kinetic Theory of** (1133).
   1. Properties of
      (a) Molecules move freely
      (b) Repulsive force
      (c) Elasticity
      (d) Pressure
      (e) Condensation
      (f) Diffusion (827)
      (g) Liquefaction of
   2. Laws of (1135)
      (a) Boyles Law
      (b) Charles Law
      (c) Guy Lassac's Law
   3. Commercial, kinds of
      (a) Illuminating Gas (1135)
      (b) Water Gas
      (c) Acetylene Gas (11)
      (d) Natural Gas (1966)
   5. Practical use of gas in gas engines (1134)

6. Practical use of gas or air pressure
   (a) Ordinary pumps (2371)
   (b) Barometers (247)
   (c) Balloons (228)
   (d) Diving Bells (836)
   (e) Pneumatic Tools (2281)

Study of Liquids

(See Hydromechanics 1139)

I. Fluids at Rest

1. Properties
   (a) Molecules move freely
   (b) Practically incompressible.
   (c) Freezing point of
   (d) Capillarity (497)
2. Laws of Pressure
   (a) Pressure on walls of receptacle
   (b) Pressure within the surface
   (c) Pascal's Principle (2178)
   (d) Archimede's Principle (133)
   (e) Torricelli's Theorem (1400)
3. Practical uses of water pressure
   (a) Pump (2371)
   (b) Water Wheel (3086)
   (c) Hydraulic Ram (1398)
   (d) Hydraulic Press (1401)
   (e) Sluice Mining (1857)
4. Specific Gravity of Liquids (1218)

Study of Solids

1. Laws of Motion
   (a) Inertia (1927)
   (b) Momentum (1928)
   (c) Action and Reaction (1928)
2. Laws of Falling Bodies
3. The Pendulum (2201)
   (a) Measure of time (clock 625)
   (b) To prove shape of earth (See Foucault 1074)
4. Machines (173)
   (a) Wedge (3098)
   (b) Screw (2586)
   (c) Inclined Plane (1426)
   (d) Lever (1622)
   (e) Pully (2369)
   (f) Wheel and axle (3117)
5. Gravity
   (1) Center of Gravity (1217)
   (2) Specific Gravity (1218)

Study of Wave Motion (3090)

All wave motions are simply methods of transmitting energy that appears as sound, heat, light, and electricity.

Waves in Matter as We Know It

I. Direction of movement
1. Transverse
2. Longitudinal

II. Effects of, in
1. Matter as we know it
   (a) Sound
      1. Velocity of travel
      2. Intensity
      3. Pitch
      4. Quality
      5. Reflection
      6. Practical uses of above
         (a) Music and Musical Instruments (194)
         (b) Sounding Boards
         (c) Speaking Tubes (See Echo, 893)
   (b) Heat (1292)
      1. Measurements of heat (Temperature)
         (a) Centigrade Thermometer (2874)
         (b) Fahrenheit Thermometer
         (c) Thermopile Thermometer (2874)
         (d) Thermograph (2874)
      2. Transmission of Heat
         (a) Conduction
         (b) Convection
         (c) Radiation—wave action in the ether
         (d) Uses of Heat
            1. Heating and ventilation (1293)
            2. Steam Engines (2752)
            3. Metallurgy (1824) (See also Calorimetry 456)

Etheric Vibrations

I. Light (1634)
   (a) Nature of (1636)
   (b) Velocity of transmission

(c) Intensity
(d) Reflection
(e) Refraction
(f) Color (654)
(g) Practical uses of above
1. Mirrors (1869)
2. Optical Instruments
(a) Microscope (1840)
(b) Telescope
(c) Spectroscope (2717)

II. Electricity
(a) Nature of
1. The elements of all atoms (See above "Chemistry"; also "Atoms," p. 189)
2. Exists as two principles known as positive and negative principles (See above "Chemistry") The negative known also as electrons (935)
(c) Sources of earth electricity
1. Whatever tends to disturb the existing arrangements, location or composition of molecules of matter
1. Friction (See Electrical Machines 929)
2. Chemical action (See Electric Battery 919)
3. Entering or leaving fields, of magnetic force (See Dynamo 880)
4. From the sun as by etheric transmission waves (This is also the source of most heat and light of the earth)
2. Transmission of Electricity
1. Conduction
2. Induction
3. Etheric Vibration (See wireless telegraphy)
3. Uses of Electricity
1. In the arts
2. In medicine
3. In the home
4. Electric lighting
5. In manufacturing

Questions

Answers to the following questions found in Curiosity Department.

What causes some days to be warmer than others?

What causes the humming noise when a bee flies?

Why is snow white?

Why are dewdrops round?

How do you see yourself in a glass?

What causes clouds?

What is wind?

What causes rain?

What enables ice to float?

What puts salt in the sea?

What makes a rainbow?

What is an echo?

Why are materials different in color by lamplight?

Why does a gas mantle give a white light?

Why are some flames yellow, some blue?

Why does a crust generally form in a tea kettle?

Why do we see lightning before we hear thunder?

What causes dew?

What makes the sun so bright and hot?

Why does a pitcher of ice water "sweat"?

Why does a ball bounce?

What makes pop corn "pop"?

What makes a rocket rise?

Does the earth attract a falling apple more than the apple does the earth?

Does the earth make any movement in response to the attraction of the moon?

Trace the source of energy that pulls a freight train.

Trace the source of energy generated at the Keokuk dam.

You require energy to study, work, play, think, even to live from day to day, where does it come from? Trace it.

Other questions on physics found in the classified questions.

ASTRONOMY

The spacious firmament on high,
With all the blue ethereal sky,
And spangled heavens, a shining frame,
Their great Original proclaim.
—*Addison.*

THE OLDEST OF SCIENCES

Astronomy is the oldest of the sciences and one of the most fascinating. The ancients, dwelling as they did principally in the open air, and in a climate favorable to observation of the heavenly bodies, began at a very early date to make a study of the phenomena of the skies. They were acquainted with some important facts of the solar system, but they also held many erroneous notions; for instance, they believed that the sun dropped into the sea at night, and some of them even went so far as to declare they could hear the hiss of the steam as the fiery ball struck the water. That they were able to distinguish the planets from the so-called fixed stars, that they detected a connection between the moon and the tides, and that they made a chart of the heavens and recognized the various constellations of stars, are facts which cannot be disputed.

But marvelous progress has been made by astronomers and their brother scientists—the mathematicians—since that early time, until today we are able to tell the exact weight or density of any heavenly body, to measure its distance from us, to tell the matter of which it is composed, to predict to the second the time of an eclipse or the appearance of a comet years in advance of the phenomenon, or to tell the speed with which a heavenly body is moving.

SPEED OF THE GOOD SHIP EARTH

Do you think you would like to travel as fast as a rifle bullet? Or what would you say if you were offered an opportunity to travel at a speed that was one hundred times that of a rifle bullet? Impossible you think? Perhaps you believe you would be blown to atoms? Well, you are now traveling at just such a frightful speed on the good ship Earth. You are hurtling through space at the rate of eighteen miles a second.

How do we calculate the speed of the Earth in its mighty revolution around the sun, and how do we account for the fact that we are not blown off into space by the motion? We know that the sun is approximately 92,900,000 miles distant.

This distance is the radius of the circle in which the Earth moves around the sun. The radius is half the diameter, and therefore the diameter of the Earth's orbit is about 186,000,000 miles. On page 3504 in our Arithmetic discussion we learn that the circumference of a circle is 3.1416, or practically 3 1/7, times the diameter. Therefore, if we multiply the diameter of the Earth's orbit by 3.1416 or by 3 1/7 we know exactly how many miles it covers in its annual swing around the sun. By dividing the number of miles by the number of seconds in a year, which is the time the Earth requires for its orbital movement, we are able to calculate the miles per second necessary to accomplish the journey.

But our good ship is so large and so steady in its motion we do not feel the movement. We are not blown from the Earth by the wind for the reason that we are moving through space that is devoid of air. Wind is nothing but air in motion, and where there is no air there can be no wind. The Earth is enveloped in a thin coat of air extending, perhaps, to a distance of 200 miles from the surface of the Earth. Beyond this thin coat of air there is no resisting medium, and this absence of resistance accounts for the uniform motion of all the heavenly bodies.

AID OF THE TELESCOPE

The study of astronomy was given a mighty impulse when Galileo (page 1121) invented the telescope in the sixteenth century. Thereafter one brilliant discovery followed another, each one opening up wonderful new possibilities to science. Possibly the most important discovery of all was that of the laws of gravitation by Sir Isaac Newton, who lived in the century following Galileo. Newton, observing the fall of an apple, was led to speculate as to why the apple, in common with all other objects, fell towards the Earth, and as a result he was able to formulate the wonderful laws of gravitation (page 1217), the value of which to science is almost beyond calculation.

HOW WORLDS ARE WEIGHED

It is by these laws of gravitation that we are able to determine the weight of a celestial body, for we know that a body of a certain mass and weight will exert a certain pull on other heavenly bodies at given distances apart. If you or I could construct an airship capable of taking us away from the Earth's surface for a considerable distance, we would find that the tendency of our bodies and our airship to return to the Earth, would diminish as we went further away from the Earth. Our weight would become less and less, until finally, at a distance of several thousand miles, the "pull" of the Earth would be almost imperceptible. If we continued on, the Earth's attraction would finally be counterbalanced by that of some other body. If at that time we were given a slight shove toward the Earth, we would begin floating very slowly toward Mother Earth, and would continue to move slowly for a long time, but with gradually accelerating speed, until by and by we would be traveling at a terrific rate, and we would strike the Earth with great force.

HOW MATHEMATICS DISCOVERED A PLANET

Newton's laws of gravitation had their supreme triumph in the dramatic discovery of the planet Neptune, the mighty orbit of which is now believed to mark the frontier of the solar system, and which orbit is so large that it requires 165 of our years for Neptune to complete its revolution around the sun. It must be borne in mind that whenever a scientist announces a principle, his theory is pounced upon by other scientists everywhere and subjected to the most merciless tests. Newton's laws have not only stood the most rigid application and observation, but they have been the means of working out astonishing results in the way of discoveries of unknown heavenly bodies.

The solar system is composed of the sun and a number of bodies called planets revolving around the sun, together with their various satellites, and the

comets and meteors. Most of these planets have been known to man from ancient times. The word *planet,* meaning wanderer, was given to those heavenly bodies which were observed to move, such as Mercury, Venus and Mars. These planets are so near the Earth as to be visible to the naked eye. But Uranus and Neptune, while many times larger than Mars, Mercury, Venus and the Earth all rolled together, are so much farther away, that they are visible only through good telescopes. In fact, the discovery of Uranus by Sir William Herschel (page 1313) in 1781 was quite accidental, and Herschel himself was not certain at first that the newly discovered body was not a comet.

It was supposed for a time that Uranus was the outermost planet of the solar system, and astronomers began a systematic study of the new planet. It was soon discovered that Uranus did not move through space with a perfectly uniform motion. Now, whenever an astronomer discovers an irregularity of any kind in the motion or periodicity of a heavenly body, he knows at once that there is a cause for it. Disturbances in the orbital motion of Uranus aroused suspicion that there was some unknown body affecting Uranus, and two mathematicians—one a Frenchman, Leverrier, and the other, an Englishman, Adams—set to work to calculate on paper the exact location and size of the unknown planet. Their work was done independently and each was in ignorance of the labor of the other. Their calculations were based on the laws of gravitation as enunciated by Newton. Here was the opportunity to apply Newton's laws in a practical test that would forever settle their verity. If Newton's laws were correct, then the perturbations of Uranus showed that there must be another body of a certain mass and distance that had not hitherto been discovered. After a long period of patient toil these two mathematicians arrived at conclusions that were nearly identical. These men instructed astronomers to direct their telescopes at a certain place in the heavens at a certain time, and there was found the mighty planet Neptune.

DISTANCE OF THE STARS

On page 2685 we learn how the solar system is constituted, and the various planets which revolve around the sun are there named. We learn that the Earth is very tiny in comparison to the sun. An idea of the enormous size of the sun may be gained from the fact that it would take us five years to go around the sun at its equator if we were to travel continuously at the speed of our fastest express trains—a mile a minute. And some idea of the enormous distance of the sun from us may be conceived from the fact that it takes eight minutes for the light of the sun to reach our Earth. In other words, if the sun's fires were to be extinguished, it would be eight minutes before we on the Earth would know it. And light travels so fast that it would encircle our Earth seven times in one second.

But as far distant as the sun is, it is comparatively near to us when we consider the enormous distances of the stars. These distances are so great that astronomers do not attempt to express them in miles. Instead, they refer to the time required for the light of the various stars to reach the Earth. Thus some of the stars are said to be seven light years away, meaning that it takes the light of such stars seven years to cross the great space between them and our Earth.

We know that each planet of our solar system is in constant motion around the sun, but it remained for Sir William Herschel to prove that our whole solar system is moving through space at frightful speed. Herschel began a series of observations and calculations that ended in the most brilliant achievements in the realm of science. He discovered that the sun and all its planets—in fact the entire solar system—is moving in the direction of the constellation Lyra at the rate of 10,000 miles every half hour. What will happen to us when we encounter the stars of Lyra? You will be dead a million years or more when that time is reached, so enormous is the distance to the constellation.

But though the progress in astronomical science has been very great, there still remain many problems to be solved —problems which perhaps never will be solved. Questions as to the limits of time or space baffle the powers of our minds as now constituted. What power set these mighty planets and stars in motion and why, are questions which have mystified the human intellect for centuries.

ORIGIN OF THE SOLAR SYSTEM

Patiently and slowly working out one problem at a time, the scientists have been trying to answer the riddle of the universe. The origin and destiny of our own solar system, vast as it is, but insignificant when compared to the rest of the visible heavens, are questions which are still unsettled. The most important theory yet offered to explain the mechanics of the solar system is the daring nebular hypothesis advanced by Laplace. (See page 1591 and page 1975.)

DIFFERENT OPINIONS CONCERNING THE NEBULAR HYPOTHESIS

The famous nebular hypothesis, described on page 1975, is not accepted in its entirety by all the modern astronomers, recent discoveries having led some of them to modify their views. It is interesting in this connection to quote several modern scientists who have expressed their opinion to the editors of this REFERENCE WORK. Prof. Harry Louis Russell, of Princeton University, says:

"With regard to the position which the nebular hypothesis now holds, I should be inclined to summarize the situation as follows: The old nebular hypothesis of Laplace involves serious mechanical difficulties, and is now accepted only by a few astronomers, mainly in France. Various modifications of it, which may properly be called nebular hypotheses, since they start with a nebula of some kind, are held by many astronomers. The planetesimal theory of Chamberlin and Moulton, which can hardly be called a nebular theory, since it starts with the sun as a 'going concern,' is preferred by many other astronomers, of whom I am one. Most astronomers still believe that the stars in general originated in nebulæ. In my opinion the evidence for this is quite unconvincing. After extensive study of the subject, which has led to a very definite conception of the relative ages of the stars, I can find no evidence of relation between the visible stars and visible nebulæ. Such a connection may exist; but it seems probable to me that there are missing links which do not shine, and hence are unknown to us."

Prof. Frank Schlesinger, of the University of Pittsburgh, says: "It is true that recent developments have thrown much doubt on some of the details of this hypothesis, but that the sun and other stars have evolved from nebulæ is not doubted by astronomers, and this is the essential fact upon which the nebular hypothesis is based."

Prof. F. R. Moulton, of the University of Chicago, writes: "The nebular hypothesis of Laplace has been called in serious question in recent years, both by observational discoveries and mathematical discussions. In 1900 I came to the conclusion that, in the generally stated form, it cannot possibly be correct. At about the same time the same conclusion was reached by Professor T. C. Chamberlin from the geological point of view. These statements have not been universally adopted by astronomers, but the conclusions have been accepted by all who have given them careful attention, so far as I am aware. In this I would include some of the foremost European astronomers. When it was found out to our disappointment, that the Laplacian ring theory for planetary origin was no longer tenable, we took up the question of finding out what the evolution of the system has been. This attempt has led to the elaboration of the planetesimal hypothesis."

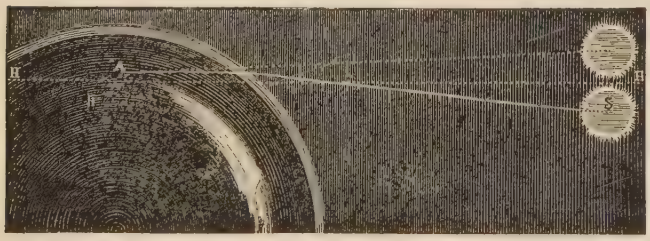
Prof. Earl C. Pickering of Harvard writes:

"The nebular hypothesis in a modified form appears to be accepted by astronomers generally, except by those who wish to substitute for it a hypothesis of their own."

WHY WE SEE THE SUN AFTER IT SETS

Our almanacs give us the hour, minute and second that the sun sets for every day in the year, but a careful comparison of this time with the actual disappearance of the sun on a clear evening will show a difference of a few seconds, because we see the sun after it has actually disappeared below the horizon.

Drop a coin into a dish, then place the dish so that you cannot see the coin when looking over the edge. Fill the dish with water and the coin becomes visible. Why is this? Because rays of light passing from the water into the air are bent towards the horizon. The water appears to raise the bottom of the dish and thus makes the coin visible.



Seeing the Sun After It Has Set

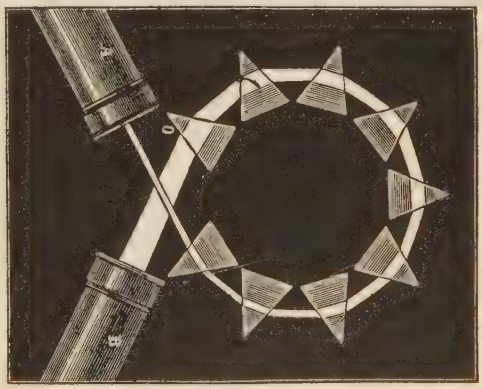
The same principle applies to any heavenly body when near the horizon. In the figure the line H H represents the horizon; S, the sun in its actual position; A, the point of the observer; S A, a ray of light extending from the sun to the observer. The heavy light line indicates the beginning of the atmosphere. The line S A is bent downward at this point, but the eye follows the ray back in a straight line, and the observer sees the sun above the horizon. For the same reason we see the sun before it is above the horizon in the morning; that is, if we are up at sunrise.

HOW WE KNOW THE COMPOSITION OF THE SUN AND STARS

Astronomers tell us that the sun contains 36 elements, all of which are found in the earth. They also tell us that these elements are found in the stars. How do they know? They have learned these facts analyzing the spectra of the sun, and the various stars. The subject of spectrum analysis is fully described in the articles *Spectroscope,* page 2717, and *Spectrum Analysis,* page 2718. Our purpose here is to show how the astronomer makes use of spectrum analysis to ascertain the composition of the sun and stars.

The ordinary spectroscope is not adapted to this work; one must be made to attach to the telescope in place of the eyepiece. Since the spectrum from a star is small, several prisms, forming a "battery," are arranged as shown in the cut. The ray of light from the star passing through the slit in A, in passing through the battery of prisms, forms a spectrum seen through the eyepiece of B. The spectrum is now broad enough to enable the astronomer to determine the substances composing it. These are the substances found in the star.

Moreover, we can determine whether the star observed is approaching or receding from our system, and the velocity of flight, from the displacement of the spectrum lines when they are compared with the spectrum of a stationary light.



Astronomical Spectroscope

Astronomical instruments have been so perfected that the heavenly bodies can be accurately measured.

HOW WE FIND OUR WAY BY THE STARS

"Our real landmarks are not the pillars we rear, but the stars millions of miles away."—*Warren.*

All inhabitants of the earth north of the equator see one object in the skies that never changes; that is Polaris, or the Pole Star. An observer on the equator would see Polaris on the horizon directly in the north. As he moves northward this star rises one degree above the horizon for every degree of latitude traversed. To an observer on the 45th parallel Polaris would appear halfway between the horizon and the zenith. By observing the altitude one can determine approximately one's latitude by the eye alone. By the use of instruments it can be determined exactly.

THE BIG DIPPER AND THE POLE STAR

Again, Polaris is north. If you can find Polaris you can always determine the other points of the compass. "But how can I find Polaris?" you ask. This star is one easily found. The Dipper, which is a part of the constellation Ursa Major, or the Great Bear, is in such a relative position to Polaris that the two stars forming the outer side of the cup point directly to this star, no matter what position the Dipper may be in. For this reason these stars are often called the "pointers."

Study the diagram, then find these stars in the sky. A little practice will enable you to find Polaris at a glance. To the mariner on the boundless ocean and the traveler on the pathless desert this star is an infallible guide.

WHY METEORS APPEAR AT REGULAR INTERVALS

You have seen shooting stars and you have probably noticed that you see more shooting stars in some months than you do in others. If you have been a careful observer you have discovered that these stars are the most numerous in August and November. Let us see why.

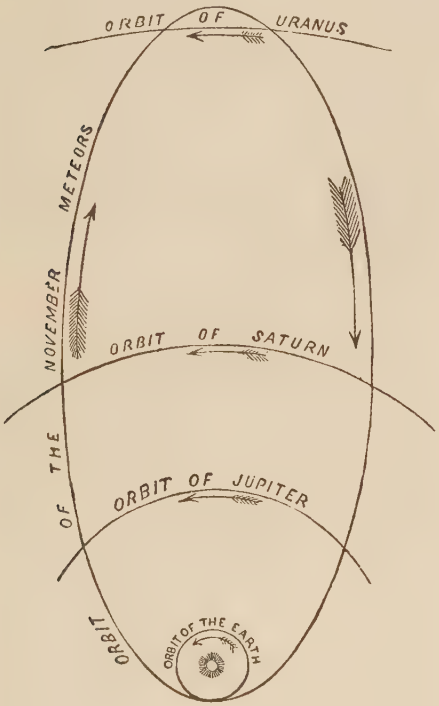
Shooting stars are meteors; that is, they are small dark bodies moving through space, in regular orbits, but these orbits are much more elliptical than those of the planets. The diagram shows the orbit of the November meteors. This orbit approaches or touches the earth's orbit and crosses the orbits of Jupiter, Saturn and Uranus respectively at two points.

The planets are so much larger than meteors that when the latter are brought near, the superior attraction of the planet draws the meteors to it. In case of the earth, the friction of the atmosphere raises their temperature to a white heat and they pass across the sky as balls of fire. Most of them burn out before they reach the surface, but occasionally a large meteor strikes the earth.

It will readily be seen that more meteors will be drawn to the earth when it is near them. Meteors move through their orbits in groups, and if a large group of these bodies approaches the orbit when the earth is near, brilliant meteoric showers occur.

There are a number of systems of meteoric bodies, each having its own orbit.

The earth approaches one of these orbits in August and another in November; therefore meteors, or shooting stars, are most numerous during those months. But the movements of the November meteors and of the earth in their respective orbits are such that the largest groups of meteors are brought within the influence



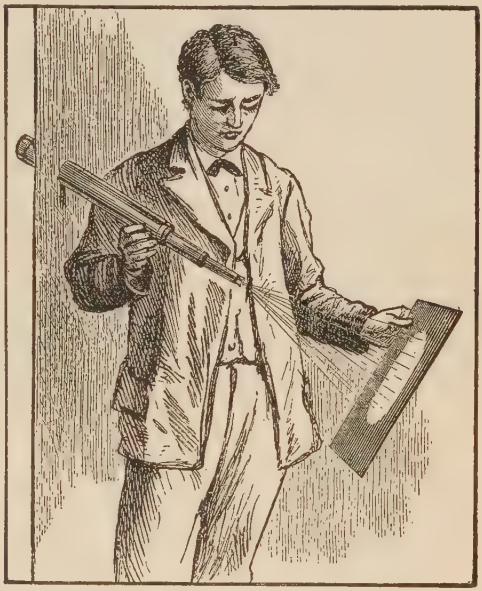
of the earth's attraction every 33 years. In these years the November display of meteors is remarkably brilliant. The last one occurred in 1899.

HOW TO SEE SUN SPOTS

When seen through the telescope the sun shows numerous dark spots on its disk. These spots appear to be cavities opening into the dark interior. Some of them are more than 100,000 miles across. If the earth were dropped into the center of one of these chasms it would seem but an atom in an immense space.

But only the astronomer with a large telescope and delicate measuring devices can determine these facts. However, any boy or girl with a small telescope can see the spots on the sun.

Darken the room and point the telescope through an opening in the shutter.



Showing Sun Spots

Hold a sheet of white cardboard a few inches from the eyepiece of the telescope. Move the telescope about until it points directly toward the sun. The full disk of the sun will then appear on the cardboard.

Notice the black spots in this disk. These are images of sun spots. By this experiment the spots on the sun can be shown to a number of spectators at once.

For a more extended study of astronomy we refer you to the Suggested Courses of Reading department in Volume VII, page IX, where will be found a complete list of astronomical subjects treated in these volumes.

By careful study, under the guide of this Index one who has never studied astronomy may gain a good elementary knowledge of this most interesting science.

THE NEW ASTRONOMY

Recent advance in astronomy constitutes one of the most interesting chapters in the annals of science. We have referred to the great distance of some of the stars. But according to recent researches, we shall have to strive in every way possible to enlarge our ideas of distance to form even a faint concept of the wonderful facts disclosed. Space is infinite. All distances are relative. Expressed in miles, even millions, they are insignificant. Measured in terms of light even, we cannot grasp the meaning. We have succeeded by direct measurements in determining the distances of a large number of stars; and by various methods the distances of still others have been estimated. There is a general agreement among astronomers, as to the substantial accuracy of these results.

The Nearest Star

The nearest star whose distance has been determined is in the constellation of the Centaur and so not visible in the northern hemisphere. Its distance is so great that it requires light three and a half years to cross the void. That is our nearest stellar neighbor. Now by similar methods we measure the distance of stars up to one hundred light years distant. But this is only a beginning. By careful investigation of double stars, the details of which it is useless to give, of one hundred and fifty-seven examples studied, it came out that only five were less than two hundred light years distant. At this point, we must do our best to greatly enlarge our concept of space, for about one-half the number examined were about 2,000 light years distant, and a considerable number were double this last distance.

The Stellar Universe

Our sun is but one of many million stars which shine in the heavens. The arrangement of this mass of stars is not globular. It may be compared to an enormous but relatively thin lens shaped portion of space, greatly elongated. Our sun is supposed to be situated, relatively speaking, near the center of this lens. When we look at the Milky Way we are thought to be looking towards the edge of the lens, the vast number of stars in that direction are so inconceivably distant that we cannot see the stars separately but only the diffused glow of their light. From what we have just learned of the distance of some of these stars, we can form a vague conception of the dimensions of our universe. They are such that it would take light perhaps 1,000 years to pierce the thickness of the lens, several thousand years, however, to cross its diameter.

Nebulae

No one can contemplate the results just named without feelings of awe. But it seems we shall have to greatly enlarge even these concepts. Here and there in the sky, a telescope of moderate power discloses patches of diffused light. Such patches are called nebulæ. One of the greatest known is in the constellation Andromeda, another is in the sword handle of Orion. When the heavens are photographed by large telescopes, the numbers of nebulae rapidly increase, running into the hundreds of thousands. It is useless, in the space at command, to attempt any description of nebulæ. We might say they fall into several classes. Some are immense expanses of cosmic gas, others represent stellar universes in various stages of evolution. Some are immense collections of stars like our own universe.

Distances of the Nebulae

The distances of some of these nebulæ, their dimensions, and rapidity of motion, are absolutely appalling. The average distance of the spiral nebulæ is supposed to exceed 20,000 light years. The Magellanic Clouds are about 30,000 light years distant, and even these distances rep-

Provisions for 5000 years must be carried for our trip to Neptune if we maintain a speed of sixty miles an hour. But we can reach Jupiter in only 710 years! The nearest star is forty-million years' journey unless some more rapid mode of travel is invented.

This illustration includes three pictures in one.

First, the earth, on which we see a company of students searching the heavens; second, the different forms of clouds; third, the solar system in space, and beyond this the stars.

The relative sizes of the planets are shown, and for the purpose of making these comparisons complete, the earth is included.

resent minimum figures. The dimensions are such, that as in our own system it must take light, on an average, several thousand years to cross their boundaries.

Rate of Movement of Nebulae

And these immense universes are in rapid motion as a whole. The same must be true of our own universe. The speed as a whole is far greater than anything we have heretofore known. The spectrum tells us the rapidity of motion in the line of sight, directly towards us, or the reverse. The average velocity of fifteen nebulæ, so far observed in the line of sight, is 250 miles a second, that is about twenty-five times the average rate of flight of about 1,000 stars, so far determined. Some of these nebulæ are approaching our system, others receding. The great nebulæ in Andromeda is approaching us at the rate of 200 miles a second, but one in Virgo is receding at the tremendous rate of 350 miles per second. Even these figures do not express the total velocity of nebulæ in space, since the spectrum tells us nothing of the motion in any direction except the line of sight, and in very few instances can that be all the motion.

Our Sun Compared to Others

Thus distance and motion lose all meaning to our finite mind. The same is true of other physical terms such as those used to express the magnitude, light and heat of stars. Our sun seems to us large, but compared with the giant sun, Canopus, it is a mote in space. Our solar system is traveling through space at a frightful velocity, many times that of the swiftest cannon ball flight, but, as we have seen it is tortoise speed, not worth noting, compared with the speed at which many of the stars are moving. How they attained such speed is beyond conjecture. All the attractive force in our universe cannot stay their flight. They entered our confines millions of years ago, they are hurrying through it; milions of years hence they will disappear in space. Our sun is hot, thousands of degrees of heat on its surface, far hotter in its interior; yet we know that giant suns in distant space are many, many times hotter than our sun.

For our sun is approaching the decrepitude of age. The final extinction of its light may be millions of years hence, but it will come, and then our solar systems will revolve in space — a dead system of worlds—but he will not be alone in his fate, doubtless for every shining sun there is a dead one that wings its flight through endless time and space, attended by a retinue of dead worlds which ever circle round him.

Space Not a Void

Space is no longer considered a void, as was once the case. It is full of particles of the most diverse size from tiny meteorites to planetoids miles in diameter, all winging their way around some central sun. They are so numerous that our earth sweeps up thousands of them every day, the most of which are small, but some may be very large. The sun must draw in millions of them every day. Sometimes the earth encounters great streams of such meteors. Whence did they come? In many cases they are evidently fragments of older worlds; and some scholars think they are part of the wreckage of two mighty, extinct suns whose collision, millions of years ago, was the origin of our present solar system. If so, what a profound antiquity they represent!

Expanding Thought

Probably we can never make practical use of these wonderful disclosures, but they tend to expand thought, to place it on a higher plane, to clarify mental vision. We gain an impressive conception of the majestic sweep of natural law. We can see by the telescope that attraction in the most distant universes is just the same as here; the stars, everywhere, are composed of essentially the same ele-

ments, though the conditions under which they exist are vastly different. The hydrogen that glows in the most distant orbs is identical with that evolved in our laboratories. Thus we are led to the conclusion that Infinite Intelligence is guiding all. But on all sides — the infinitely great, the infinitely small — we speedily reach the confines of human knowledge, beyond which is mystery.

COSMOGONY

Theories put forth to account for the present conditions of our solar system, or of greater aggregates, as our stellar universe, the stages of growth through which they have passed, and what is to be the final results, are theories of cosmogony. In general, such theories have only included our solar system, and, of course, other solar systems, like ours. We have briefly alluded to the Nebular Theory, and some of the recent objections to the same. No hypothesis has received universal adherence. We can only surmise. The greatest difficulty is to account for the beginning. That remains and doubtless ever will remain an impenetrable mystery. We may speculate as to a possible series of changes.

The Life and Death of a Star

Worlds, not less than all forms of organized life on their surfaces, pass through a regular series of changes. The time required may be brief, in the case of world it may extend over such a prolonged period of time that we are utterly unable to comprehend it. We know that the progress of a star is an ascending and descending curve. It grows in heat. It progresses from the complexity of fusing elements to the simplicity of pure gas, cools, and regains complexity until it reveals the elements which we know on earth.

The question, which holds the secret of eternity, is whether the curve is closed or whether it is part of a circle. When the gas mass has cooled, become a complex composition of many elements, and has died, does a re-creative force establish itself to disintegrate this dead mass and send its particles back through the process of life? If this happens then evolution is properly revolution. Evolution is only an arc of the circle. Revolution is the complete process and eternity is its product.

Those ascending and descending curves can be traced in the sky by the spectrum. Suns in various stages of evolution can be found. Some are young and simple, some are old and complex. Some expiring in night. If such an expiring sun is itself a satellite, it begins its prolonged cycle of life as a planet. If, however, extinction in night has overtaken the central sun of a system, then universal death and night will rule in that particular system. It is supposed there are even now more dead systems swinging in space than there are living ones, and it is thought collisions of such suns occur.

Possible Renewal of the Cycle

Will the cycle ever begin anew? Not with the sun and planets as they are now. There is, however, one possible means by which sun and planets both may be dissipated into fragments and form again a nebulous mass, or a mass like some of the nebulæ, for nebulæ are not all constituted on the same plan. Such a condition might occur in case our system should collide in space with some other dead system. It is thought by some that we see just such fiery revivals in the sudden flashing out of new stars in distant space, relatively a frequent phenomena, and it is thought by some that our present solar system came into being in that way, and that the aerolites which have landed on the surface of our earth, showing all evidence of being fragments of larger bodies, are portions of these ancient, colliding systems. The human mind stands aghast at the antiquity such

a hypothesis demands for these wanderers in space. They represent not millions but billions of years.

The Circulation of Matter

The celebrated Swedish astronomer, Arrhenius, has pointed out what may be characterized as the circulation of matter, faintly analogous to the circulation of water, which, evaporated from the surface of the ocean, wafted far inland, falling as rain, seeks the ocean again by countless rivers. And so, in a slightly analogous manner, from the sun and other glowing stars, are emitted the elements of matter composing them—the electrons or corpuscles—in inconceivable quantities, at the speed of light. Space must therefore contain an infinite number of such particles. Far in the depths of space, these gather, to become in the process of countless ages, a cloud of cosmic gas which begins a well nigh endless series of changes as a nebulous mass, to ultimately gather in suns and systems. This might possibly be the origin of such a chaotic mass, of such boundless dimensions, as the Orion nebulæ, in distinction from the origin of some great spiral nebulæ as in Andromeda, possibly formed by the collision, or the too near approach, of two giant systems to each other. In either case, we see from the wreckage of older systems, new systems forming. Thus the cycle re-begins.

All theories of cosmogony tend to lift the mind to higher planes of thought. We can but wonder at the achievement of science and contemplate with awe the majestic sweep of natural law, extending its jurisdiction over boundless space, through endless time, embracing in its scope the infinitely great, the infinitesimally small.

NOVA AQUILLÆ

June 8, 1918, was signalized by the sudden flashing forth of a star in the constellation of Aquilla which, previous to that date, had existed as a star of the 11th magnitude, thus far below a star that can be seen by the naked eye. A photographic plate taken June 3, 1918, shows the star at its normal magnitude. One week later it was nearly the magnitude of Sirius, emitting nearly one hundred thousand times as much light as its normal amount. It will be known in astronomical records as Nova Aquillæ. It has since returned to its normal magnitude, but it is now the center of a nebulous haze, and the light emitted is the characteristic light of stars thought to be in an early stage of development.

Scholars tell us that such nova, or new stars, are a comparatively frequent phenomenon. Nearly every year some photographic plate catches the flash that heralds such an outbreak; but few, however, have occurred of sufficient magnitude to become noticeable objects in the heavens. All are thought to pass through substantially the same cycle of change as noted in this case. Most of these outbreaks are far in the depths of space possibly several hundred light years distant.

We cannot as yet frame an hypothesis to account fully for all the observed cycle of changes. A tremendous cataclysm of some kind occurs. The theory of most general acceptance is that the star, with stellar velocity, suddenly enters a nebulous field. That is a vast section of space literally full of stellar material, ranging from cosmic dust to planetoids, and that the great quantities of heat engendered by contact of the invading star and this mass of material raises the temperature of the surface of the star to a varying degree, but sufficient in all cases to account for the observed effect. In short, that here is witnessed the renewal of the cycle just spoken of in cosmogony.

PLAN FOR THE STUDY OF ASTRONOMY

I. Early History

1. Ancient Egyptians
2. Chinese
3. Chaldeans
4. Greeks
5. Modern Nations

II. Systems

1. Ptolemaic
2. Copernican

III. Celestial Sphere

1. Poles of the Heavens
2. Measurements
   - (a) Celestial equator
   - (b) Right ascension
   - (c) Declination

IV. The Solar System

1. Sun
2. Planets
3. Planetoids
4. Satellites
5. Meteors

V. The Sun

1. Size-Distance
2. Characteristics
   - (a) Photosphere
   - (b) Spots
3. Motions
4. Effects
   - (a) Light
   - (b) Heat
   - (c) Life
   - (d) Attraction

VI. The Planets

1. Names
   - Mercury
   - Venus
   - Earth
   - Mars
   - Jupiter
   - Saturn
   - Uranus
   - Neptune
   - Planetoids
2. Distances
   - (a) From the sun
   - (b) From the earth
3. Motions
   - (a) Year
   - (b) Day
4. Satellites
5. Eclipses

VII. Divisions of Time

1. Day
   - (a) Sidereal
   - (b) Solar
   - (c) Civil
2. Year
3. Month
4. Week

VIII. The Stellar System

1. Stars
   - (a) Characteristics
   - (b) Size
   - (c) Distance
   - (d) Number
     - First magnitude
     - Second magnitude
     - Other magnitudes
     - Double and multiple stars
2. Constellations
   - (a) Zodiac
   - (b) Milky Way
   - (c) Great Bear
   - (d) Cassiopeia
   - (e) Orion
   - (f) Others

IX. Biographies of Astronomers

1. Brahe, Tycho
2. Copernicus, Nicholas
3. Galileo
4. Kepler, Johann
5. Newton, Sir Isaac
6. Laplace, Pierre Simon
7. Newcomb, Simon
8. Young, Charles A.
9. Others

PLAN FOR THE STUDY OF THE MOON

I. **Position in the Solar System**
   1. A Satellite of the Earth

II. **Size**
   1. Diameter
   2. Mass
   3. Compare With Other Satellites
   4. Weight of Bodies on the Moon

III. **Distance from the Earth**

IV. **Motions**
   1. Around the Earth
   2. Around the Sun
   3. On its Axis

V. **Phases**
   1. New Moon
   2. Quarter
   3. Full Moon

VI. **Appearance and Structure**
   1. To the Naked Eye
   2. Through the Telescope
   3. Cause of Bright and Dark Spots

VII. **Eclipses**
   1. Of the Moon
      (a) Cause
      (b) Duration
   2. Of the Sun
      (a) Cause
      (b) Duration

PLAN FOR THE STUDY OF THE SUN

I. **Position in the Universe**
   1. A Star
   2. Center of the Solar System

II. **Size**
   1. Diameter
   2. Mass
   3. Power of Attraction
   4. Weight of Bodies in the Sun
   5. Compare with other Stars

III. **Distance from the Earth**

IV. **Parts**
   1. Photosphere
   2. Chromosphere
   3. Corona

V. **Sun Spots**
   1. General Appearance
   2. How to See Sun Spots
   3. Size
   4. Frequency.
   5. Movement
   6. Causes

VI. **Motions**
   1. In the Universe
   2. On its Axis

VII. **Power of the Sun**
   1. Attraction
   2. Heat
   3. Light
   4. Life { Vegetable / Animal }

VIII. **Eclipses**
   1. Cause
   2. Duration
   3. Frequency

Physiology

Physiology as used in this article is classified knowledge of the human body,—it includes a description of the various parts and their functions, and how to conserve the general health. The trained aviator in charge of a flying machine must understand every detail of the machine that he controls, for his life may depend upon such knowledge. You are in charge of a machine more wonderful than any flying machine, and success and happiness may depend upon intelligent application of knowledge pertaining to the same. We have accordingly prepared this physiological sketch, intended to be an introduction to a more formal study.

A Temple Not Built by Hands

Every step in our study will disclose much of interest and present evidence of design; at places, we will realize that we are in the presence of a wisdom greater than we can understand. As we continue on our way, we realize that this body of ours serves a varied purpose,—it is a temple, not built by hands, wherein we preside; it is a living machine, whereby we do our daily work; it is a factory, whose product is human life.

A Two Storied Building

How many stories are there to this body factory? You are ready to answer three. On reflection, you will decide there are but two,—the head and the trunk. The limbs and the arms are only appendages to the trunk, very convenient, but not absolutely necessary to life. For some unknown reason they may not develop; you have perhaps seen such unfortunate cripples. Accident may deprive one of arms and legs or even both, and yet one may survive. But human life cannot possibly exist if either head or trunk be lacking. Thus our body factory is essentially two storied.

By Way of Review

If, now, you will refer to our zoological sketch, you will see how true it is that in our bodily structure, we are but modified animals,—our trunk and our

head are essentially the same as similar parts in quadruped mammals generally. Nature pursued her usual plan of improving by modifying original design,—she has set us upright, changed the fore limbs to arms, the fore feet to hands. But a great gulf is fixed between us and the highest developed animals below us by improved brains. That is the one essential improvement that enables life and intelligence to manifest on the human plane. Otherwise, there is not an organ in our body that better serves its purpose, or is more wonderful in construction, than similar organs in the highest mammalian animals below man.

A Hint from Mother Nature

Mother Nature evidently intended that her children, men, the latest arrivals in the animal kingdom, should rely on brains, that is, the exercise of mental faculties,—observation, reflection, reason, and judgment,—to win advance in higher things. (See "The Animal That Conquered the Kingdoms," p. 3361.) You should make this lesson personal and train your mental faculties so as to be able to do your part in life most successfully. These faculties may be considered as mental muscles, and the only way to strengthen them is to use them,—set them to work in all that you do from day to day.

The Frame-Work of the Factory

We know what important purposes the frame-work of a building serves. The frame-work of the body factory is composed of bones (see "Bone" p. 340). There are about two hundred bones in all, united in various ways, collectively known as the Skeleton (see "Skeleton" p. 2656). The bones of the head and the trunk,—giving form, support, and protection to the two essential stories of the body factory,—are the frame-work proper. But there are other and important bones that are parts of the skeleton as a whole, but they form a division apart by themselves.

The Engine of the Factory

A factory requires an engine to do the work of the factory. An engine must be provided with parts of iron and steel of different lengths and shapes,—such as pistons, driving rods, and levers. A locomotive must be provided with wheels to enable it to move from place to place. The bones of the feet, hands, arms and legs are the working parts of the engine that the body factory requires in order to do efficient work. The factory is not stationary and the feet and legs, like the wheels of the locomotive, carry it from place to place. The hands and arms are the working machines that enable the factory to do efficient work in life.

Outline for Study

This sketch will serve to impress important facts on your mind, but for a more formal study make use of the outline at the close of this article in connection with subjects in this reference work to which your attention will be called.

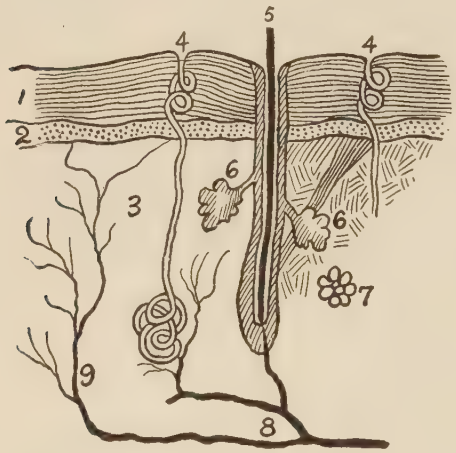
The Walls

Of course our body needs walls to inclose the entire structure. In buildings the walls, floors, and ceilings are composed of different parts. There is the outer sheath of board, stucco work, brick or stone; there is generally lathing and plastering on the inside; and directly connected with the walls in modern structures are water and steam pipes, and pipes for gas, wires for electricity, etc. This arrangement is slightly modified for walls of the inner rooms.

The Skin

If now you will consult the article "Skin" (p. 2657) you will see that the skin is truly a wall made up of different layers; closely connected with it are drainage tubes, and tubes carrying blood and nerves. We generally paint the outside of our buildings, nature places the paint cells at the bottom of the outer cuticle.

In order to understand why nature colors up the skin consult the questions on "Tan" and "Freckles," p. 3552. We cannot equal nature's work, and there is always some good purpose in her work. Notice also the presence of fat cells in the lowest part of the skin. It is the presence of these cells, collectively known as adipose tissue, that makes the hands plump, the brow full, the cheeks round. The fat cells contain stored up food or energy and now do you see one reason why as one becomes old the hands



1. The Epidermis or outer layer
2. The Color Cells
3. The Dermis or inner layer
4. Pore or drainage tube
5. A Hair
6. Oil Glands for the Hair
7. Fat Cell
8, 9. Tubes carrying blood and nerves

become skinny, the brow furrowed, the cheeks fall in? The surplus food is exhausted.

The Gearing

In a factory the gearing means the parts, taken collectively, by which motion is transmitted from one portion of machinery to another. In our body factory nature has arranged a most wonderful system of transmission gears, collectively known as the Muscular System. They surround the bones, they run in bands and bundles and sheets, they shrink into cords and tendons by which they are tied to bone levers. The energy they transmit is sometimes under your control; they will not move the machinery by which you walk, or talk, or write, unless you will tell them to. Sometimes they are automatic in action, when necessity occurs they act in spite of your will. Try holding your breath, you can do it for a short time; but when the need for air is acute, they act whether you agree or not. Still another set are so arranged that quite unknown to you, without any volition on your part, they are in constant rhythmic action as in the heart.

Simply Energy Transmittors

There is one point you must not overlook. The factory gearing can only transmit power that is given to it, by the energy of electricity, or water, or steam. The muscles cannot move of themselves. In some way energy is being imparted to them, as we shall discover later. Does not this mental picture enlarge on you? We have now considered the frame-work of the factory, the solid parts of the engine, the walls, and the gearing, we have just started on our tour of inspection. For the purpose of a more formal study make use of the outline placed at the end of this article.

The Factory Work

Our body-factory must have workmen, they must be supplied with material wherewith to keep in repair or to improve and enlarge the various parts of the factory. Such material must some way be carried to every part of the body, old and worn out material must be ejected from the body; means of transport must be found, and special organs must be prepared to assist in these operations.

Oxygen Supply

The workmen require oxygen wherewith to effect chemical changes, which constitute the work they have to do. Means, then, must be provided to carry

oxygen from the air to all parts of the body, and return to the air poisonous gases generated in this series of operation. And still further, we shall soon discover that there are many million workmen in the body, and disease germs are constantly endeavoring to find lodgment in the body and by making war on the workmen destroy them, or break down the health of the body by rendering some of the machines useless. An army of defenders must be mobilized, and means of rapid transport arranged so that they be hurried to imperiled points. Let us study the various details of this work; a wonderful breadth of vision will come to us as we continue this tour of inspection.

The Workmen

The workmen of the factory are the cells (see "Cells" p. 532). There are countless millions of such cells in your body; they are modified to serve different purposes,—some are doing duty as bones, some as nerves, others as lungs, and so on for every tissue in the body. Each cell is a life by itself, all under the general supervision of the general manager of the factory. The number of these workmen is so inconceivably great that millions drop out of work every second to be replaced by new arrivals. There is probably not one of the workers in your body today that was present seven years ago, and for most of them, the period is far shorter.

The Method of Transport

Nature has provided a canal system wonderfully adapted to internal transport. The canals radiate from, and return to, the heart. The outgoing canals are called arteries; they divide and subdivide as they increase their distance from the heart; finally they become a network of exceedingly small canals that reach every machine, every part of the factory, frame-work and walls. The return canals are called veins, they start as a network of extremely small canals, leading from every machine, every part of the walls and frame-work, they unite to form larger canals as they approach the heart. The entire system is called the circulating system (see "Circulation" p. 603; notice color illustration).

The Canal Fluid

The fluid in the canals is called blood (see "Blood" p. 324). As in all canals, the main part of this fluid is water, but in the outgoing current are swept along the raw material out of which new cells are made, no matter how differently they are modified for the various purposes they are to serve. In addition there are countless millions of oxygen carriers, known as the red blood corpuscles, so numerous that they color the entire fluid red; and the soldier forces on guard against disease germs, known as the white corpuscles, ready to do instant battle with any disease germs that may enter the blood. (See "questions as to swelling around a cut," p. 3563.) The return current is loaded with refuse material, the worn out cells; and the oxygen carriers are now loaded with carbonic acid gas, formed by the action of oxygen.

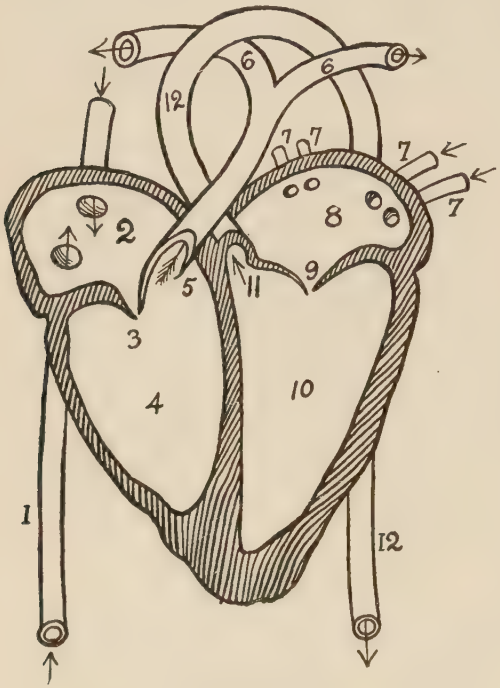
Outline for Study

We have prepared an outline for a systematic study of the entire canal or transport system in the body factory (see outline end of this article). We often see in stores and factories various means of mechanical transport. The transport system employed by nature in our body factory is wonderfully efficient.

The Force Pump

In a canal, we rely on the force of gravity to propel the current. But in this body canal system, the current not only flows down to the feet, but must be forced from the feet back to the heart. It must continually circulate, whether we are sitting, walking, or lying down. If anything interrupts the course of the oxygen carriers for even a few moments, the entire work in the factory ceases. So

a wonderful force pump, called the heart, is located at the central point, and its work continues with rhythmic regularity throughout life. But, remember, the heart is a muscular mechanism, it cannot beat of itself, energy in some form from some source must be supplied to it. (See "Heart" p. 1291. Trace course of blood through heart by means of key p. 603.)



1. Vein to the Right Auricle or receiving chamber
2. Right Auricle
3. Right Mitral Valve
4. Right Ventricle or discharging chamber
5. Left Semilunar Valve
6, 6. Pulmonary Artery — canal to the lungs
7, 7. Pulmonary veins—canals from the lungs to the heart
8. Left Auricle or receiving chamber
9. Left Mitral Valve
10. Left Ventricle or discharging chamber
11. Left Semilunar Valve
12. Aorta, main supply canal

Preparation of Raw Material

In a factory raw materials of iron, steel, wood, leather, etc., are constantly arriving in quantities. The supplies are melted, sawed, cut, and otherwise prepared to serve the purposes of the factory. As we have pointed out, the work of our body factory is to keep various parts in order so that life and intelligence may manifest through them on the physical plane. This requires energy, force from some source. As far as the material world is concerned, the source of energy is in the food we eat, the fluids we drink, and the air we breathe. These must be supplied or our factory cannot run.

The Nutritive System

Nutrition is a term to indicate the sum of the processes by which this result is attained. The nutritive system means all the appliances in the body, organs, etc. (machines in the factory), by which nutrition is rendered possible. Here again, we are to inspect wonderfully efficient means to attain the purpose sought. Nothing so lifts thought to higher things, so impresses us with the thought that an intelligence greater than we can understand expresses itself through an agency that we, for want of a better term, call nature, than thus to consider the evidence of design in the application of means to an end in our body factory.

The Receiving Room

The material is received in a special room (the mouth). They are passed on by an inspector (the tongue). Some of the material he summarily rejects; some he passes under protest, as it were, he has been instructed to receive them, though he knows they are not nutritious, —such as alcoholic drinks. The materials received undergo a preliminary preparation by the teeth and are moistened by a chemical fluid from the salivary glands; it is sent down a delivery tube (the aesophagus) to the digester. Surely this is an important work. We should keep the reception room in order by carefully cleaning it at least every morning, keeping the mixers (the teeth) in order, and not hurrying the operation.

(Consult "Mouth," 1932; "Tongue," 2903; "Teeth," 2838; "Saliva," 2531.)

The Digester

In many a factory you will find, suitably located, a strong, tightly closed vessel of iron in which a mixture of materials is acted on by chemicals and heat so as to yield a new product, which is a chemical and mechanical mixture of the original ingredients. Such a machine in a paper mill takes in wood, rags, and chemicals—to yield pulp from which paper is made. The stomach (p. 2769) is the digester of our body factory that receives the partially prepared mixture from the receiving room. This material is then supplied with a liberal allowance of a chemical fluid (the gastric juice), then by a churning motion the entire contents are digested. The result is a new product—a mechanical and chemical mixture of the original contents, known as chyme; and this, in turn, is passed on into the second digester, known as the duodenum (see "Intestine" p. 1456).

The Second Digester

In the stomach the gastric juice is prepared by millions of minute glands in the walls of the stomach; but that juice does not act on all the elements of the food passed by the inspector. The work of the second digester is so important that two separate glands (machines) are set to work to manufacture important chemical fluids to act on materials that the stomach passed along ("Digestion" p. 827). One of the machines is exceedingly important, and is known as the liver (see p. 1673). It furnishes bile and some other fluids. Note also, the liver is a reserve pantry, or store house, of the factory. Then another very important machine (the pancreas, see p. 2155) furnishes another chemical fluid, the pancreatic juice. The additions complete the work of digestion. The chemical and mechanical mixture is now known as chyle. It has no resemblance to the original supplies, passed by the inspector into the digester; but neither has paper pulp any resemblance to the material with which the paper making process started.

The Absorbers

In making paper the pulp is received on wire frames and starts on a long journey, the object being, as the pulp passes along, to remove, by heat and absorption, the water from the pulp (see "Paper" p. 2157). The journey of the chyle through the small intestine is purposely made long and winding so as to allow the absorbers arranged at every stage of the way to remove the nutrient material and pass it through numerous very small tubes that by coalescing finally end in one large tube that carries the absorbed fluids, rich in nutriment, to the blood, whence it is sent throughout the body. (See "Lacteals," 1573.)

Review

It is well to constantly review the parts we have described which are the framework, engine, walls, gearing and transport system; considering also, in a hurried way, the workers; the oxygen carriers; the soldiers, or protecting forces, and the forcepump. This being such an important subject for study we have prepared an outline for study placed with other outlines at close of this article.

The Oxygen Exchange

We have learned that all forms of life whether animal or vegetable require oxygen to keep up the series of changes on which life depends. There must then be a series of organs to supply the oxygen. (See questions about breathing p. 3538.) Collectively, the organs that supply needed oxygen are known as the Respiratory System. We must not overlook these organs in our tour of inspection.

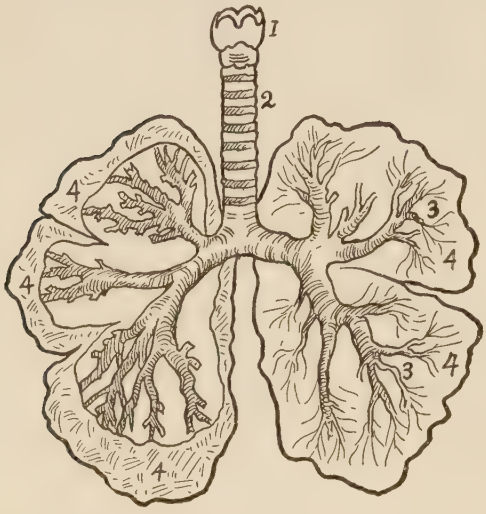
The Air Inspector

Nature intends air to enter the body by way of the nose; but many form the bad habit of breathing through the

mouth. Sometimes the nose passages are closed by a cold in the head, or by foreign growths,—as adenoids; but in normal life the nose is the organ that admits air to the body. The nose has several attachments that illustrate the nice adjustment of means to an end, observable in all nature's work. (See "Nose" 2066.)

Inspecting Instruments

In the first place, the air inspector is armed with a smeller that ofttimes warns him when injurious gas is present in the air. (See "Smell" 2664.) This smeller also enables the nose to help the food in-



spector (tongue) to decide on the quality of food,—we carefully smell suspicious food. Then the nose is provided with a sneeze machine. Sometimes injurious particles that are present in the air insist on trying to pass the sieve of hairs with which the nose is provided. In such cases the sneeze attachment is set to work and such particles are blown out. (See "Why do we Sneeze," p. 3569.)

The Warming Rooms

Passing through the nose passages the air enters, through a sponge like arrangement of thin bones that strain out coarse particles, the warming rooms (Nasal Chambers) where its temperature in cold weather is modified before passing into the lungs. Thus you see there are many reasons why we should follow nature's plan and breathe through the nose. Passing down the Pharynx (1), at the back of the mouth, (see p. 2233), the air enters the trachae (2) (see p. 2914) and so arrives at the exchange proper, the lungs (3 and 4) (see p. 1717).

The Work of the Exchange

It is in the lungs that the oxygen carriers (the red blood cells) loaded with carbonic acid gas that they have gathered in their passage through the veins throw off their loads and take on minute quantities of oxygen which they carry to the multitudinous cells of the body. We must remember there are millions of these carriers in each drop of blood; but there are countless millions of cells calling for oxygen. The work of the air exchange is so important that life cannot long survive its interruption.

The Office Force

We have now gained a general idea of the body factory as a whole, and the major or principal operations that result in supplying the vital needs of the factory. Every step of the way has opened up subjects of great interest. An intelligence greater than we can understand has evidently arranged the details of the structure. In many factories it is indeed wonderful how much of the work is automatic,—you press a button or pull a lever and machinery does the rest. But no factory ever constructed is wholly automatic,—the labor of many skilled workmen, under the direction of competent foremen all controlled by a manager is needed. It is so in our body factory. A vast amount of work is automatic in character; but all processes are under the general charge of life, and when that be gone, all work ceases. Life itself, seems to be an intelligent force, or it is a force under the direction of intelligence, acting with the aid of special assistants, known as the senses.

The Telephone Exchange

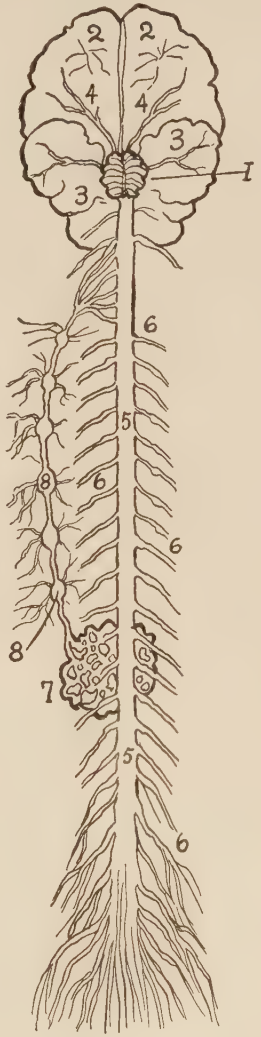
Some means, then, must be provided by which the needs of the factory can be reported to the foreman in charge, that is as far as many of them go. We are not conscious of them, the foreman attends to the matter. More imperative needs are reported to the general manager; we are conscious of them. They may go to a higher authority still which we will soon consider. It is further evident that provisions must be made for the return of orders to meet the needs, or to ward off threatened dangers, or whatever the occasion requires. Accordingly the body factory is provided with a wonderful telephone exchange known as the nervous system. Every part of the body is in communication with necessary centers that are supplied with wires (nerves) wherewith to transmit needs and warnings, and with other wires by which to receive needed directions. It is a wonderful system. We must inspect it.

The First Assistant Manager

We, of course, expect the offices of the factory to be located in the upper story, the head. And there is the central exchange (see "Brain" p. 368), the Cerebro-Spinal exchange. This exchange attends to the reports from the sense organs,—sight, hearing, feeling, etc.,—and dispatches orders for motions in response to same. It has twelve special wires (Cranial nerves p. 733) to the eyes, ears, nose, and other parts of the head. It has a nervous cable (the spinal cord p. 2725), protected by the bony segments of the vertebral column. From this cable thirty-one pairs of nerves (Spinal nerves p. 2725) are sent out which divide and subdivide and thus reach every part of the body. This is an exceedingly important exchange. Perhaps you have seen some unfortunate so paralyzed that he could not walk? The trouble is not in the limbs, but the spinal cord (the telephone cable), is injured somewhere, and orders cannot be sent to the muscles that move the limbs. (See also Cerebellum).

His Special Work

The intelligence in charge of this exchange is charged with the duty of bringing the activities of the body into agreement with the conditions in the outer world. We must walk about, work with



TELEPHONE SYSTEM OF THE BODY FACTORY

1. Central Telephone Exchange.
2, 3, 4. Suboffices of the Brain.
5. Main telephone cable in the Spinal Cord
6, 6. Spinal nerves or wires to various parts of the factory.
7. Main Sympathetic Exchange.
8. Substations of the Sympathetic Exchange

our hands, write, read, talk, work with all sorts of instruments in order to make life worth while. The intelligence in charge of this exchange is fitted with special sense organs that report conditions existing around him,—such as "look out, or you will run against a tree; listen, the train is coming, wait where you are till it passes; that iron is too hot to handle," and so on. These special sense organs are the eyes, the ears, the smellers in the nose, the tasters in the mouth, and the feelers in the cuticle,—all connected by wires (nerves) with the first exchange. (See "Eye," p. 992; "Ear," p. 883; "Taste," p. 3831; "Smell," p. 2664; "Touch," p. 2910.) The nerves that carry the ingoing sense messages are called sensory nerves.

The Return Orders

Unless the matter be very important the operator in charge of the exchange transmits orders in response to the messages received. He orders an immediate change in the direction of the walk to avoid the tree, or he stops the walk until the train has passed, he orders the hand to let the iron alone, and so on. The wires (nerves) that carry outgoing commands are called motor nerves.

The Second Assistant Manager

The cerebro-spinal exchange attends to our outer, every day life, what we voluntarily do. But there is a vast amount of bodily activity connected with the real work of the body factory which is not under our voluntary control, such as digestion. All activity of this kind is placed in charge of the sympathetic nervous system (p. 1983), with headquarters in the center of the work room, on the first floor, known as the Solar Plexus (see p. 1983). There are numerous subexchanges (known as sympathetic ganglia, p. 1983), scattered up and down the working room (thoracic cavity). This exchange is so important that the intelligence in charge may be called life's second assistant.

His Work

He presides over the functions of the organs of the body. He takes charge of secretions, controls and manages nourishment, the size and tone of the blood vessels, attends to the work of the oxygen exchange; has control of the workers and soldiers, and attends to the internal transport system. All involutary, unconscious activities in the body factory are under his charge. All muscular motion necessary in his work he controls without asking the first exchange about it. You may wish to hold your breath, the first exchange issues the necessary orders, the second exchange acquiesces for a short time, then he calmly overrules them and you breathe. He attends to ordering new supplies by reporting the sensation we call hunger; he demands rest by reporting fatigue, or insisting on sleep. This is the exchange whose work is sought to be influenced by drugs and medicine in sickness. If you can someway influence the intelligence in charge by mental commands, you do not need medicine.

The President of the Factory

All of these exchanges are connected one to the other with cross wires so that the general manager, life, may be said to have everything under his direct observation. Finally, there are wires that run directly to the executive office where that mysterious entity that we call "I" or "Ego" or the "Soul" presides, surrounded by his executive officer, the Will; his helpers, the mental faculties; his secretary, memory. Just as the President of a factory comes to his place of business, then retires to social life, so the president of the body factory shows us but one phase of his activity, we can but dimly comprehend his connection with the spiritual world; we are conscious that he has powers that even this wonderful body we have been describing, this exceedingly complicated exchange we have inspected, cannot express.

Bones

1. Shape
   (a) Long
   (b) Short
   (c) Irregular
2. Composition
   (a) Outer, compact layer
   (b) Inner, porus shaft
3. Covering—Periosteum
4. United by joints
   (a) Imperfect (dovetailed) in cranium
   (b) Hinged joints—Elbow
   (c) Ball and Socket—Hip-joint
   (d) Pivot—joints of the back bone
5. Moved by Muscles

Skeleton of Framework

The Axial Skeleton (p. 2656)
(The Framework Proper)

1. Backbone, Vertebral Column
   Vertebrae
   (a) Cervical
   (b) Dorsal
   (c) Lumbar
   (d) Sacral
   (e) Coccygeal
2. Sternum or Breast Bone
3. Ribs
   (a) True Ribs—attached to the Sternum
   (b) False Ribs—indirectly attached
   (c) Floating Ribs—not attached
4. Skull (p. 2658)
   (a) Cranium
   (b) Facial bones
   (c) Bones of the ear

Appendicular Skeleton
(The Engine Part of the Factory)

1. The Upper Extremity
   (The Working Parts)
   (a) Pectoral Girdle
      1. Scapula
      2. Clavicle
   (b) The Arm
      1. Humerous
      2. Radius
      3. Ulna
      4. Carpals
      5. Metacarpals
      6. Phalanges
2. The Lower Extremity
   (The Locomotive Part)
   (a) The Pelvic Girdle
      1. The Sacrum
      2. The Hip bone
   (b) The Leg
      1. The Femur
      2. The Patella
      3. Tibia
      4. Fibula
      5. Tarsals
      6. Metatarsals
      7. Phalanges

Skin

I. The Epidermis, Outer Skin
II. The Pigment Cells
III. The Dermis, The True Skin
Connected with Skin:
1. Pores—Openings of
   (a) Sebaceous glands
   (b) Sweat glands
   (c) Hair Follicles
2. Hairs (p. 1256)
3. Fat Cells (Adipose Tissue)
4. Blood Vessels
5. Muscles
6. Nerves—ending in Papillae

IV. Functions
1. Protects the body
2. It serves the sense of touch and temperature
3. It carries organs for
   (a) Protection (Hair)
   (b) Body drainage
   (c) Regulating body temperature

Muscles

I. Properties
1. Contractility
2. Elasticity
3. Tonicity

II. Kinds
1. Voluntary
   Characteristics:
   (a) Striated
   (b) Attached at each end to bones, connected by a joint
   (c) Arranged in pairs

2. Involuntary
   Characteristics:
   (a) Not striated
   (b) Not attached to bones. Found in the walls of hollow organs
3. Cordiac (Heart) Muscles

Circulatory System

I. Heart
1. Location
2. Size
3. Shape
4. Covering
5. Chambers
   (a) Right auricle
   (b) Right ventrical
   (c) Left auricle
   (d) Left ventrical
6. Valves
   (a) Bicuspid
   (b) Tricuspid
   (c) Semilunar
7. Circulation effected
   (a) Pulmonary—The Right Chambers
   (b) Systemic—The Left Chambers

II. The Canal System
Outgoing Arteries
Ingoing Veins

III. The Canal Fluid. Blood
1. Composition, mainly water
2. Transports
   (a) Outgoing current
      1. Raw Material for Cells
      2. Oxygen Carriers (Red Blood Cells)
      3. Soldiers for Defensive (White Blood Cells)
   (b) Ingoing Current
      1. Refuse Material
      2. Carbonic Acid Gas

The Nutritive System

I. The Reception Room (themouth)
1. Lips
2. Teeth
3. Tongue
4. Salivary Glands

II. The First Digester (the stomach)
1. Location
2. Shape
3. Size
4. Openings
5. Valves
6. Secretions
7. Function—Mixes, softens, and partially digests the food
8. Product—Chyme

III. The Second Digester (the duodenum)
1. Function
   1. Receives fluids from the liver and pancreas that completes digestion
   2. Product—Chyle

IV. The Absorbers (lacteal glands)
1. Location
2. Function
   1. To absorb the nutrient fluids from the chyle
   2. To pass it through minute channels to the Thoracic Duct from which it enters the body

Outline for Study of Nervous Systen (Telephone System)

I. Cerebro-Spinal Exchange
1. Location
   (a) Brain
      1. Cerebrum, attends to the higher faculties of the mind
      2. Cerebellum, correlates the motor impulses
      3. Medulla Oblongata
   (b) Spinal Cord—a telephonic (nerve) cable carrying numberless wires, ultimately reaching every part of the body. There is a small subexchange located at each vertebra junction which in case of emergency issues commands without waiting for orders from Central

2. Nerves (wires)
   (a) Location
      1. Cranial
      2. Spinal
   (b) Function
      1. Sensory
      2. Motor
3. Work of. To correlate the activities of the body with conditions of the outer world reported by external sense of organs
   (a) Eyes
   (b) Ears
   (c) Smelling bulb in nose
   (d) Taste bulb in tongue
   (e) Touch bulbs in cuticle

II. The Sympathetic Exchange

1. Location
   1. The Solar Plexus
   2. Subordinate Ganglia
2. Work of. Has control of the involuntary processes of life and co-ordinates the action of the internal organs

III. Connections, all exchanges connected by many cross wires; thus subject to the unifying control of life

Eye (p. 993)

1. Appendages
   (a) Eyelids
   (b) Eye lashes
   (c) Eye brows
   (d) Eye socket

2. Eye Ball
   (a) Size and Shape
   (b) Parts
      1. Sclerotic membrane
      2. Choroid membrane
      3. Retina
      4. Optic nerve
      5. Cornea
      6. Crystalline lens
      7. Vitreous tumor
      8. Iris
      9. Pupil
   (c) Lachrymal Glands
      1. Tears
      2. Tear duct

3. Function of
   (a) An Optical Instrument
   (b) Optic Nerve
   (c) Blind Spot

4. Diseases of the Eye
   (a) Color Blindness
   (b) Out of Focus
      1. Near sight (994)
      2. Far sight (994)

Ear

I. Parts
   (a) The External Ear
      1. Auricle, Concha
      2. Auditory Canal
         Protective Wax
   (b) The Middle Ear
      1. Size
      2. Lining—Ear drum
      3. Cavity
      4. Eustachian Tube
      5. Ossicles
         (a) Malleus, or Hammer
         (b) Incus, or Anvil
         (c) Stapes, or Stirrup
   (c) The Internal Ear or Labyrinth
      1. Part of
         (a) The vestibule
         (b) The semicircular canal
         (c) Cochlea
            1. The organ of Corti
            2. Fluids

II. Functions of

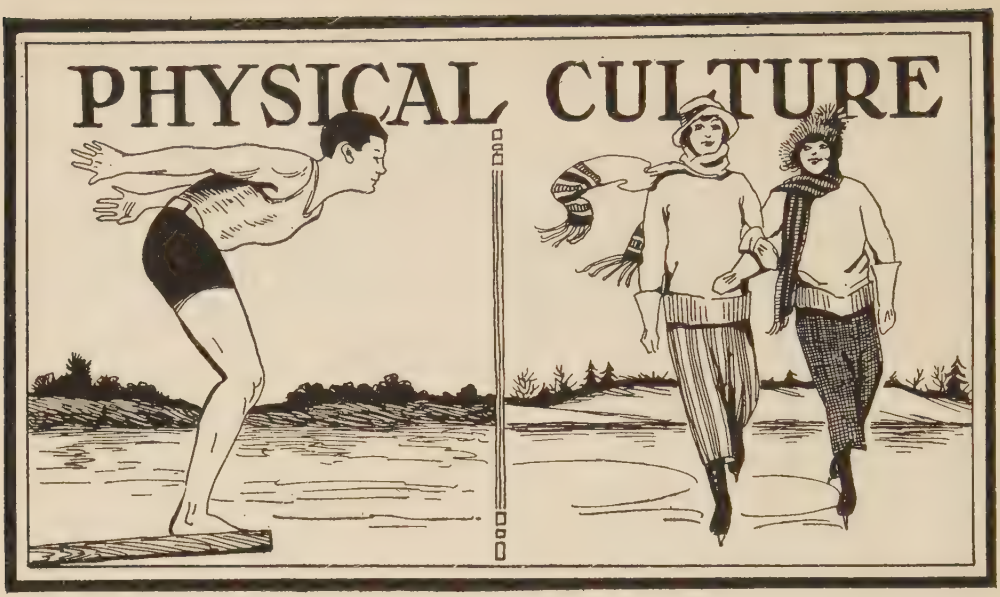
To transmit vibrations to auditory nerve

Questions

Answers to questions can be found in Curiosity Department.

Why do we breathe?
What is hunger?
What is the use of lines on the hand?
Why do we cough?
Why do we cry?
Why do we tan when exposed to the sun?
What are freckles?
Why do we shiver?

Many additional questions on physiological subjects found in classified questions.



Health the Foundation of Efficiency. Without the vigor and vital power that go with a sound body, the most cultivated mind cannot render high-grade service. The business or professional man who would have the powers of clear thinking and of sustained effort, which are so essential to success in this age of keen competition, must give thoughtful consideration to his physical welfare. It is only by carefully following the laws of health building—by daily attention to the care of the body—that one is able to combat the evils growing out of the artificial conditions under which civilized man lives in the present day.

Many a business or professional failure has been caused by ill health. The man who tires rapidly, who is capable of clear thinking only in the early hours of the day, will soon be passed in the race of life by more enduring competitors. The man whose body is saturated with fatigue poisons, whose organs of elimination are sluggish, who is drowsy and brain-weary during working hours, is struggling under a serious handicap.

To develop an imposing muscular physique is not the purpose nor the ideal of the true physical culturist. The end sought is an increase of vital force, of vigor, to develop power of resistance against disease and to make the individual capable of a better quality of work and of more prolonged application.

Physical Deterioration a Price of Civilization. There was a time when the gospel of health culture did not need to be preached, but that time was many centuries ago when man was in a state of nature. He lived in the open air and provided his food by the chase. Sickness was then little known. Neurasthenia, tuberculosis, insomnia and kindred modern ailments had not developed. But today man lives far from nature. He confines himself in poorly ventilated houses and toils in closed offices, mills and shops. The result of this unnatural mode of living has been the development of many forms of physical and mental affliction.

The physical deterioration of the civilized portion of the human race has challenged the attention of scientific investigators. As a result, the best efforts of the medical profession today are being directed to the prevention, rather than to the cure, of disease. This fact is a tribute to a noble profession.

Certain Rules Apply to All. The careful study which has been given this

subject has resulted in the formulating of definite principles of right living,—of living the efficient life. It is recognized that no two persons are alike, and, therefore, the same rules will not always apply to every individual case. Besides, there are special cases of chronic or acute disease which will test the skill of the ablest physician or surgeon. Nevertheless certain fundamental rules are practically universal in their application and need only to be applied with reasonable intelligence to prove highly beneficial.

Progressive Men are Faithful Health Culturists. The man who thinks he has no time to give attention to health culture is pretty certain sooner or later to find that he has no health to look after. Progressive men today do not need to have pointed out to them the fallacy of this attitude. Wide-awake, 20th-century professional or commercial leaders have learned to set aside a part of each day for health building, and are seeking light on the best means of improving their physical vigor and endurance, or, in other words, their power for better and more work. It should be borne in mind that there are numerous grades of physical efficiency. A man may not be actually confined to his bed from illness and yet be far from well. Many people go through life only half alive.

It is our aim in this discussion to outline for the average individual, but more especially the one whose habits of life are sedentary, a daily regime of right living, which, if faithfully adhered to, will result in improving the physical and, therefore, the mental condition, for it is universally recognized that the old Greek ideal, "a sound mind in a sound body," was founded on a solid basis of fact. The nervous system, of which the brain is a part, derives its sustenance from the body, and the quality of this nourishment depends on the degree of physical vigor of the body.

Gains from Living an Efficient Life. Our system of health culture divides itself naturally into several departments, each of which we discuss clearly and in nontechnical language under its proper heading. By following these principles of right living the individual will make distinct gains in personal appearance and efficiency, as follows:

(1) Bodily vigor.

(2) Endurance—Power of sustained effort.

(3) Grace of movement.

(4) Symmetry of body; good appearance, in other words, a valuable business asset.

(5) Clear-headed optimism; the power to think rationally and to work out one's daily problems with a mind that is not clouded by ill nature or despondency, which are always more or less associated with a depleted nervous system.

(6) Morality. Health and clean living are so closely akin as to be almost interchangeable terms.

The popular notion that physical instruction seeks to develop a powerful muscular physique, is, of course, erroneous. The modern health culturist recognizes that big muscles do not furnish a sure index to health. A man may possess enormous biceps and yet be organically unsound. The goal sought by health culturists is an increase of vital power through the strengthening of the vital organs. The healthful and harmonious functioning of the organs of digestion, circulation and elimination is the end desired.

EXERCISE

Value. Man needs exercise every day just as he needs food and water every day. An individual may live without exercise as he may live for a limited time without food, but he will be greatly weakened by his abstinence. Exercise has been found effective in correcting morbid bodily conditions and in imparting tone to the organic mechanism. A gymnasium equipment is not necessary; in fact no apparatus is required for performing the bodily movements we recommend.

When to Exercise. The best time to take these exercises is in the morning on arising from bed. Ten to fifteen minutes every morning devoted to these bodily movements and followed by a cold plunge, cold sponge or a brisk rub with a coarse towel will assist very materially in building vitality, and in helping the body to provide a pure blood stream to nourish and repair the nervous system.

Which Movements to Emphasize. It is the trunk of the body that commands the chief attention of the physical expert today. The trunk is the power house of the body. Here are located the vital organs,—the heart, the lungs, the stomach, the liver and the intestines —to name the most important ones. It has been found that there is a strong sympathy between the muscles of the trunk and the vital organs beneath these muscles. Weak and flabby trunk muscles indicate a low vital tone within. Therefore, movements which tend to strengthen the muscles of the back, chest and abdomen, and which at the same time quicken the blood circulation and make the heart and lungs work faster, are the most conducive to the building of vital power.

Be Careful not to Overdo. The exercises described herewith should be taken in a well-ventilated room. If the weather is cold, be sure to wear sufficient loose clothing to avoid being chilled. It is not expected that all of these exercises will be taken every day by any person. They are to be selected with regard to individual needs. Use such of them as you like best, and those which you find by experience give you the greatest benefit. Be sure to avoid overdoing. Many people become enthusiastic over the benefits of exercise and carry it to extremes. Stop, when tired.

Brisk Open-Air Exercises Are Important. In addition to the above early-morning exercises, take some brisk exercise every day in the open air. It should be kept in mind that benefit from exercise comes indirectly; that is, through the purifying action of the blood stream, the blood being cleansed and enriched by its passage through the lungs. Other organs of elimination are the skin, the bowels and the kidneys.

Eminent physiologists have likened the body to a poison factory. Poisons are being continually generated, and these poisons must be as rapidly eliminated by the proper organs. The skin, for example, is continually throwing off poisonous vapors, and it has been declared that if a human body were to be varnished over so that the skin could not eliminate these poisons, the individual would die in a short time. See *Circulation; Skin; Heart; Lungs; Blood; Arteries.*

Therefore exercises should tend to make one breathe more deeply and more rapidly, to quicken the action of the blood and to accelerate the functioning of the organs of digestion and elimination. The best of these exercises, and the cheapest, are:

Walking. Take a long walk every day. If the distance is not too great, walk to and from your place of business. Walk with a rhythmic swing, chest high, head up. Expand the lungs freely. Walk fast enough to make the face red and until you are reasonably tired; never until you are exhausted.

Running. A moderate run every day, if only a block or two, will yield beneficial results, with certain exceptions. Of course, this exercise will need to be abandoned by anyone suffering from heart trouble. This is an excellent exercise for quickening the circulation.

Swimming. The best general exercise. Never lose an opportunity to swim. Do not stay in very cold water too long. A half hour spent in swimming in water of moderate temperature is better than a roomful of tonic medicines.

Open-Air Sports. Horseback riding, tennis, golf, boxing, wrestling, baseball, handball,—all these are highly beneficial sports that combine healthful excitement with invigorating exercise.

—Photographs from Harris Teachers College, St. Louis.

SUPERVISED PLAY

1 Social dancing. Girls and boys dancing Soldier's Joy.
2 Girls interpreting music of the Mikado Lanciers.

—*Photographs from Harris Teachers College, St. Louis.*

PLAYGROUND ACTIVITIES

1 Boys marking circle for Dodge Ball
2 Children playing on see-saws, swings, and ladders.

EXERCISE FOR YOUNG CHILDREN

Exercises for young children need to be modified from those recommended for adults. The following exercises were approved by Mrs. Ella Flagg Young for the children of the Chicago public schools. In sending out these exercises, the physical director of the Chicago schools said:

"Practically no attention has been paid to posture, and this is only brought about by thorough drill in calisthenics and apparatus work. These movements will tend to develop the chest and trunk muscles, and guard against possible spinal deformities."

The instructions for open-air centers are as follows:

1. Inhale and exhale several times.

Raise arms sideward and inhale; lower arms and exhale.

Rise on toes and inhale; lower heels and exhale.

Bend head backward and inhale; raise head and exhale.

Raise arms sideward, rise on toes, and inhale; lower arms and heels and exhale.

Raise arms sideward and twist, bending head backward, and inhale; lower arms, raise head, and exhale.

2. 1—Hands behind neck, and sit erect—place! Hands on lap—place!

2—Hands behind neck, and lean back—place! Sit erect, and hands on lap—place!

3—Head backward—lower! Raise head, and sit—erect!

4—Head backward, and lean back—lower! Raise head, and sit—erect!

5—Lower head backward, raise chest and inhale deeply—lower! Raise head and exhale—raise!

6—Raise left arm sideward and turn head left—raise! Lower arm, and head to the front—turn!

7—Like exercise 6, but right.

8—Place right hand behind neck and turn head left—place! Lower arm, and head to the front—turn!

9—Like Exercise 8, but vice versa.

10—Lower head backward, raise chest, inhale deeply, and lean back. Raise head, exhale, and sit—erect!

The above exercises to be conducted by command. Practice each exercise several times.

Recreation Exercises. Exercises in sitting position.

From the erect position, forearms toward chest, finger tips touching, elbows sideward.

1—Move arms slowly sideward as far as possible, and twist the arms, knuckles down. Return to starting position. Practice several times.

2—Like 1, but inhale at first movement, and exhale at second.

3—Like 1, but lower head backward at first movement and raise head at second.

4—Like 3, but with inhaling and exhaling.

5—Like 1, but with leaning backward, arms over desk in rear.

6—Same, with inhaling and exhaling.

7—Like 6, but with lowering head backward and raising.

8—Like 7, but with inhaling and exhaling.

Exercises in standing position:

From the erect position, forearms toward chest, finger tips touching elbows sideward:

1—Move arms slowly sideward as far as possible; twist arms, knuckles downward, and rise on toes. Return to starting position and lower heels. Practice several times.

2—Like Exercise 1, but at first movement inhale; exhale at second.

3—Step position forward left (right) like Exercise 1, but with first movement bend left (right) knee, and with second movement straighten the knee.

4—Like Exercise 3, but with first movement inhale; at second, exhale.

5—Like Exercise 3, but with bending of knee bend head backward, and raise head with straightening of knee.

6—Like Exercise 5, but with inhaling and exhaling.

7—Like Exercise 3, but with bending of rear leg.

8—Like Exercise 7, but with bending head backward, raising head, and with these movements, inhaling and exhaling.

Note: All exercises in sitting as well as standing, especially with breathing, must be practiced slowly.

OTHER AIDS TO HEALTH

Breathing. Deep breathing should be practiced daily till it becomes a habit. We have already explained the purifying function of the lungs. The man who works in an office should insist upon having his room ventilated winter and summer, and he should stop his work occasionally to stretch himself and breathe his lungs full of air. The time given to this exercise is not lost. Another good time to practice breathing is when walking. Inhale slowly, counting one for each step until the lungs are full. Then exhale in the same number of steps.

Drink Plenty of Pure Water. A glass or two should be taken on arising, a glass or two before the noon meal, another glass or two before supper and the same on retiring. If thirsty at mealtime, it might be well to drink one glass of water, but not more.

Bathing. The importance of water in the treatment of disease and in the building of health has long been recognized. This method is called hydrotherapy. Certain large health institutions make the use of water chief among their pathological agencies. Cold water applied to the skin has a tonic effect, stimulating the organs of secretion and excretion. A common instance of this is the strong sense of hunger which follows a cold plunge. Hot water has a soothing effect, and, therefore, warm baths just before retiring are frequently prescribed for the relief of insomnia. Some people are not strong enough to endure a cold plunge, but those who can do so undoubtedly derive much benefit therefrom. It is well for people of low vitality to content themselves with a cold sponge applied to the neck and chest, followed by a brisk rub. Keeping the skin free from dirt is another obvious benefit of the use of water.

Sleep Requirements Vary. Eight hours is the average person's need. Some can get along on less, but others require nine hours. Be sure to get enough sleep, but too much sleep is harmful. Learn to relax when you go to bed. Make it a practice to drop all business cares. Sleep alone and in a well-ventilated room. In winter time, open all windows from the top. Sleeping outdoors is infinitely preferable to sleeping in any house.

Mental Condition Important. While it is true that the bodily state affects the mind, it is also true that the mind affects the body. Evil thoughts become reflected in the body. Therefore all negative thoughts, such as hatred, jealousy, pessimism and the like should be banished.

HEALTH HINTS

Tobacco is an arch enemy of efficiency.

Keep the teeth clean; brush them on arising and retiring and after each meal See the dentist once a year.

The right side is the side to sleep on.

Make one day of each week a day of complete rest. Take a half day off, if possible, in the middle of the week.

The clothing should be loose, comfortable, light and porous. Wear porous cotton or linen underclothing next the skin.

Avoid patent medicines. The habitual use of any drug is harmful.

For inactive bowels, knead the abdomen well with the hands night and morning. Eat fruit, fresh vegetables and whole-grain cereals.

For "biliousness," fast or eat fruit exclusively for a day or two.

Don't worry, especially while eating.

Eat at regular hours so as to maintain the normal intestinal rhythm.

WHAT TO EAT

What to eat and how much to eat are questions which have provoked more discussion perhaps than any others per-

taining to health. Many radically contradictory opinions have been formed. Some, for example, advocate a strictly vegetable diet (See *Vegetarianism*), urging that the eating of meat is highly injurious to the human system. Others would banish all cooked foods whatsoever from the dietary, insisting that the maximum of strength and energy comes through eating raw foods, such as nuts, fruits, grains and vegetables.

Earnest investigators have worked out elaborate tables of daily food rations which are based on the needs of individuals according to their weight or height. In these tables the calorie is taken as the unit of measurement, and the daily ration for the average human being is estimated at 2500 calories.

The consensus of expert opinion seems to take a middle ground among all these extremes and to counsel moderation. It is probably true that civilized man today eats much more meat than he requires. Less meat should be eaten in hot weather than in the winter, and the man who works at a desk needs less meat than he who does manual labor. Meat is stimulating and heat-producing. The contention that man needs some uncooked food is also sound; therefore, some fruit, raw vegetables or raw cereals should be provided at every meal.

THE MAIN FOOD ELEMENTS

There are three main food elements—proteids, fats and carbohydrates—and of these it has been found that the adult needs much more of the fats and carbohydrates than he does of the proteid element. Laboratory experiments have shown that only about one-tenth of the total food supply should be proteid. The proteids are used to repair the waste tissues of the body. All over the actual amount of proteid food needed is believed to be positively harmful. The principal proteid foods are:

meat	milk
cheese	beans
nuts	eggs

The fats supply the heat to the body. Among the foods which are especially rich in fats are:

cream	milk
butter	nuts
olive oil	animal fat

The carbohydrates are the starchy foods, as:

potatoes	fruit
corn	beets
sugar	rice

Fleshy people who wish to reduce their weight should avoid starchy foods and fats. They must not indulge in sweets or pastry. This rule is, of course, reversed for thin people.

It is probably true that the majority of people eat too much food. Excess of food is highly injurious, but, on the contrary, too little is dangerous, and no one should attempt any of the so-called fasting cures except under the supervision of a skilled physician. Too many people are slaves to their stomach. The saying that some men "dig their graves with their teeth" is a true one.

Men of sedentary occupations are more apt to overeat than the man who does hard physical work. For the sedentary worker two meals a day are better than three, though if one is doing well on three meals we would not advise a change. Eat slowly and eat enough, then quit. Under no circumstances take food when the stomach holds remains of a previous meal.

Avoid rich foods, such as pastries, gravies, fried cakes, etc. Make sparing use of condiments, as vinegar, spices, pepper and "appetite" sauces. Tea and coffee are injurious to some people, especially if used to excess. Alcoholic drinks should be shunned entirely. The man who would be efficient and the woman who would have beauty must not touch wine, whiskey, beer or any other strong drink in any form. More and more are governments and business organizations demanding that their employees abstain from the use of alcoholic beverages. This demand is made in the interests of efficiency and reliability.

CHILD STUDY CHART

FIRST PERIOD
INFANCY AND EARLY CHILDHOOD—ONE TO SIX

EARLY INFANCY

Physical Development	Mental Development	Moral Development
Sense of well-being or ill-being	Vague sense impressions	
Hunger	Attention divided by external causes	
	Sense of Touch	
Physical sense of resistance of external objects or bodies	Beginning of sensation	
	First impressions vague	
Reflex movements	Realization by touch of external objects	
Muscular movements without direction of the will		
	Sense of Hearing	
Physical impressions of sound	Consciousness of sound	
	Sensation of sound awakened	
	Attention aroused by sound	
	Sense of Sight	
Physical impressions of sound waves	Consciousness of light	
	Sensation awakened	
	Realization of intrusion of a dark body between the eye and the light	
	Senses of Taste and Smell	
First impressions on the organs of taste and smell		Subjective feelings of pleasure or displeasure—anger
	Sensations of taste and smell gradually awakened	
	Observation begins	
	Memory follows observation	The dawn of desire
Formation of physical habits begins	Association of ideas begins	
	Expectancy and anticipation	

LATER INFANCY

Self-directed muscular actions	Realization of the self or egoism	Objective emotions
1. Grasping	Curiosity manifest	Recognition of pleasure and displeasure in others
2. Holding	Sensation becomes more accurate	
3. Lifting head, arms and legs	Attention strengthened	Desire to please
4. Lifting body		Obedience
5. Sitting	Memory increases in activity	
6. Creeping	Dawn of imagination	
7. Lifting body to an erect position	Observation broadened and strengthened	Concrete sense of right and wrong or good and bad, as discerned through the pleasure or displeasure of others
8. Walking		
	Discrimination begins 1. Subjective 2. Objective	
Dentition	Recognition of colors, form, size, distance, number to two	
Vocalization		Emulation
Muscular imitation	Recognition of the meaning of sounds, as words and music	Trustfulness Truthfulness
Play-motor	Combination of words into sentences	
		Self-centered feelings
Talking	Development of language	Non-social tendencies

SECOND PERIOD
YOUTH TO ADOLESCENCE—SIX TO TWELVE

Physical Development	Mental Development	Moral Development
Rapid physical growth	Development of Mental Powers	Social tendencies
Development of head, brain, etc.	Sensation	Independence begins to assert itself
	Attention	
Second dentition	Memory	Egoistic tendencies
	Association	
Tendency to disease—	Observation	Feelings
Laws of health	Discrimination	
Possible sense defects	Classification	Self-centered
	Judgment	
Physical self-direction	Concrete reasoning	Limitation of experience, and consequent misjudging of values
Physical activity	Will	
Surplus energy	Imagination becomes constructive	Spirit of Adventure
Habits	Curiosity	
Plays	Investigation	Hero-worship
	Concentration	
	Construction	Idealism
	Invention	
	Imitation	
	Emulation	Trust
	Distinctions between fact and fancy	Faith
	Habit	Distinction between right and wrong, truth and falsehood
	Rapid development of language and music	

THIRD PERIOD
ADOLESCENCE TO MATURITY—TWELVE TO EIGHTEEN

Physical Development	Mental Development	Moral Development
Rapid growth	Maturity of mental powers	Moral responsibility
Change in		
nerves	Will	Will a factor
heart		
voice	Memory	
Biological maturity	Reasoning	Ethical training
	Formation of concepts	
	judgment	
	conclusion	
Habits	Value of extensive mental experience	Emotional life
Peculiarities		Lack of love
Idiosyncrasies		Lack of sympathy
Wrong		Change of interest
Bad		Altruism
	Desire for knowledge	Development of love
	Value of reading	Hero worship
Physical expression in		
Play		Social Interest
Exercises		Altruism
Tennis	Mental habits	Love
Ball games	Observation	Friendship
Racing	Attention	Social responsibility
Rowing	Memory	Patriotism
Walking	Thought	
Swimming	Mental loafing	
Value of cold baths		Happiness
Physical training		Religious nature
Value of military training		

CHILD STUDY

Ah, what would the world be to us
If the children were no more?
We should dread the desert behind us
Worse than the darkness before.

What the leaves are to the forest,
With light and air for food,
Ere their sweet and tender juices
Have been hardened into wood,—

That to the world are children;
Through them it feels the glow
Of a brighter and sunnier climate
That reaches the trunks below.

—*Longfellow.*

INTRODUCTION

An analysis of the steps by which a child develops from a helpless little human animal, which, if left alone in the world for a few hours, would die, into the normal, physical, mental and moral full-grown stature of a man, is of intense interest, and well worth the while of those whose mission in life is to minister to these little ones.

This is an age of child study. Our greatest magazines open their pages to the discussion of the child's amusements, his development, and all the things which shall make for his happiness and well-being. Our public schools are the fields of countless experiments, where educators are working out their various theories, each earnestly seeking to meet some new phase of this vital question. As to the value to the child of this laboratory stage of education we may have many opinions, but certain it is that the world is awakening to the realization *that the child is life's greatest asset, and that as the child is today, so shall the nation be tomorrow!*

Never before in the history of the world have so many people given thought to one subject, as are concentrated on this world-wide effort to "give good gifts to our children."

Perhaps the beginning of the movement may be dated from the establishment of Juvenile Courts in the large cities, and the coming of great-hearted Judge Ben Lindsey into the world of the delinquent child. Good children had been gathered together into Sunday Schools and day schools, and taught after an approved pattern, but Judge Lindsey found the heart of the child, and began an investigation as to what were the influences in his life which brought him before the courts. He considered the child as an individual, and put the question to the world: What has society done to this boy? And the world was startled, and gave heed.

At first the movement touched only the delinquent child; then it reached out to the unfortunate, and found that often these were one and the same. Then the movement found its way into the schools, and annual meetings of educators began to discuss a new question —What are the schools doing for the child?

The organization of women's clubs and societies, the National Congress of Mothers, and the Parent-Teachers Associations completed the triangle—the State, the School and the Home.

The Home and School Educational Society is a part of this great movement for the child, having for its purpose the closer union of these two great institutions, the interests and purposes of which are the same, and which can only attain to the fulfillment of the highest good for the child when they shall join hands together and give of their best in highest service.

So our book on Methods would not be complete without a chapter on *Child Study*. Here we are trying to offer some things which we trust may help the parent and the teacher in their efforts. If by this, one child has opened to him the door of understanding and opportunity, closed before, we shall not have given this space in vain.

We present with this study a chart showing how we have tried to follow the development of the tiny boy and girl, step by step, through infancy, babyhood, childhood and youth into young manhood and young womanhood.

The chart shows in brief the stage of development of the physical, mental and moral nature from infancy to manhood and womanhood. Since these powers are all blended to a greater or less extent in every act, it is impossible to draw any sharp line of separation between them. The chief purpose of the chart is to show when the different powers become active, and their influence on the development of character.

The study is divided into three periods. The first period extends from infancy to childhood, and includes the first six years of the child's life. The second extends from childhood to youth, or from the sixth to the twelfth year. The third is the period from the twelfth year to maturity. The reappearance of the same topic in different periods indicates a marked change in the development of the power mentioned.

The age of 18 does not carry a child out of adolescence, and this period may reasonably be extended to that of 23. This is perhaps one of the best results of modern civilization. The long period of dependence of infancy and childhood has made civilization possible, and the extension of this period and the conservation of the energies of the race have worked for good in stronger manhood and womanhood.

FIRST PERIOD

INFANCY TO CHILDHOOD—FROM BIRTH TO THE SIXTH YEAR

"Who can tell what a baby thinks?
Who can follow the gossamer links
By which the manikin feels his way
Out from the shore of the great unknown,
Blind and wailing and alone,
Into the light of day?"

SENSE OF WELL-BEING OR ILL-BEING

Sensation. It is impossible to tell at what point purely physical sensation becomes mental sensation. The first crying of a child is not the result of sensation, but merely the adjustment of the lungs to outer air conditions. Though a child were immediately subjected to what would ordinarily cause pain, the nerve current would not make a complete circuit and there would be no sensation, and so no manifestation of pain in the form of a cry.

In the well-developed, well-nourished child hunger does not manifest itself for some hours, often as many as 24, and the only sensation is a purely physical one of well-being or ill-being. If the latter, it acts as a stimulant, and other processes develop more rapidly, though unnaturally. A child stimulated by dis-

comfort from birth may never be able to regain the lost nervous force, and may suffer in some manner all his life as a result.

Every additional sensation forced upon the babe is a stimulant, and an unjust drain upon the nervous force which ought to be given entirely to the one business of his life—growth.

Clothing. Here the question of clothing enters as a vital factor. Instead of an elaborate preparation of ruffles and ribbons, the clothes should be made as simple as possible. A tiny babe may be fretted to a point of crying by a mother's constant effort to keep a sleeve ribbon in place. First-borns are especially liable to suffer from this weakness on the part of the mother who rebels against the injunction that the baby needs no dress-up company clothes.

The flannel band, which should protect the chest and fit snugly but not tightly about the abdomen, the carefully adjusted napkin, and the loose slips which are supported from the shoulders, are all that is required. Clothing should fit; when too loose it does not properly support the body and gets into knots and bunches. When too tight it causes discomfort and interferes with the free action of the chest and abdomen.

Cleanliness. Special care should also be given to clean linen, that no discomfort may result from chafed skin; strong soap should never be used, pure white castile being the safest. The body should be carefully rinsed and never rubbed. If the skin is unusually sensitive, bran or salt baths may be given. (Wheat bran may be put into a soft bag and allowed to soak and then squeezed until the water is like thin porridge. A teaspoonful of common salt may be used to each two gallons of water.) When delicate parts of the body chafe, sweet oil may be used.

Care should be used in the selection of baby talcum powder. Dr. Holt recommends a powder of starch, two parts, and boric acid, one part. All of these are vital considerations.

Quiet. After attention to warmth, cleanliness and clothing, and regular intervals of feeding, a babe should be left absolutely alone, and the room should be darkened and quiet so that the delicate nervous organism shall not register a single unnecessary sensation.

Attention. First attention is purely sensational. The child must note or attend the manifested sense of hunger before it can give expression to its existence. This expression is usually a fretful sound indicating vague discomfort, but is evidently caused by sensation, as the putting to the breast stills it at once. Often merely lifting the child will still a cry, showing that association is already beginning to be a part of sensation, and the basis of habit is formed.

Food. The first habit to be established is that of feeding. No hard and fast rule can be laid down here, as the amount of nourishment in the milk may be greater in some cases than in others, as well as the child's capacity to assimilate. The rule for a normal child, however, is this: at first feed him every two hours during the day and twice at night. After the first month the time may be extended to two and one-half hours and after two months every three hours, night nursing to be given up after five months. This is Dr. Holt's rule. If this schedule does not seem satisfactory, a physician should be consulted, who may prescribe change of diet in the mother.

It cannot be too strongly emphasized that a mother should nurse her child if it is possible for her to do so. The mother who deliberately refuses this sacred duty puts a wrong upon the child for which nothing can compensate. The child has a right to nature's own food, and to deny him this is to deny to him his best chance for life. When artificial foods are necessary, a physician should be the guide.

Need of Water. A child should from the first be given plenty of water to drink. A nursing bottle should be used at first and the water given at milk temperature. Ice water should never be given to a babe or to a child under three years of age. Nature requires a great deal of water, and the endless demand of children for drinks is nature's own manifestation of need.

DEVELOPMENT OF SENSES

Touch. The child gains his first consciousness of self through the unconscious acts of feeding and movement, and the attention to the sensations which these produce. This is attention so transitory and fleeting as to be unworthy of the name, yet by repetition it is the beginning of the formation of associations, from which the whole basis of his mental life is being builded.

Just when there is a definite consciousness of self as distinct from the things about him, the realization of the "me" and the "not me," it is difficult to tell. There is a certain sense of the support of the bed and of the difference between that and the mother's arms, as is indicated by the very early desire to be held, but the sense of falling and the physical recoil if support is withdrawn do not develop until after the development of the sense of hearing. There comes a realization of the resistance of bodies, as undirected physical action brings little hands and legs into contact with clothes or pillows; through these sensations the sense of touch is stimulated. The apparently reflex clinging of the babe is one of the wonder qualities.

Sight. The purely physical sensation of light or darkness brings the color consciousness, and the first unheeding sense of sight is developed. This is one of the things which should be early watched and tested. At first there is no seeing, but only a consciousness of light and an intrusion upon that consciousness when any object intercepts the light. If the eyes are normal, light consciousness is perfect, and will respond to certain tests which indicate a normal development of the sense of sight.

At first the child can look only from side to side. If an object is moved up and down the eyes cannot follow, as the muscles directing this motion are not yet active.

Care of Eyes. The eyes of the child should be tenderly and carefully washed with a bit of absorbent cotton dipped in a lukewarm solution of salt or boric acid—one even teaspoonful to one pint of water. If the slightest particle of pus appears in the eyes, they should be cleaned every hour with a solution of boric acid (ten grains to one ounce of water). If the lids stick together, a little vaseline from a tube should be rubbed into them at night.—Holt, *Care and Feeding of Children.*

Hearing. The new-born child is deaf. This is caused by the lack of air on the tympanum previous to respiration. Experiments have been made to determine at just what period the child may be said to hear. Results have been varied—from two hours to four or five days. A child seems to have a physical consciousness of sound as a disturbing element before it can be said to hear. Differences are early noted, as sounds harsh or soothing, a fact known to mothers the world over, and finding expression in the lullaby and crooning mother-song. This acute sensitiveness to sound should be borne in mind by the mother—not that sounds should stop, but care should be taken that the voices are kept low and well modulated and high keys avoided. A mother of a placid little one of eight months said, "She has never heard a harsh sound in her life." If this had required any effort on the mother's part, the result must have been ample repayment.

Taste and Smell. The senses of taste and smell are the last to develop. The child feeds to satisfy the purely physical sensation of hunger, and will accept a bottle of milk-warm water as

its food, and will swallow bitter medicine as readily. It is often four weeks before the sense of taste seems to develop if no medicine is given to force stimulation.

Peculiar sensitiveness to smell has been noted in children but a few days old, but this seems to be held in abeyance, manifesting itself early only when surrounding conditions offer unusual stimulation.

In this connection we may consider the tendency of the child to put everything into his mouth. This is commonly attributed to the ever-present desire to eat, but the truth seems to be that the desire to eat manifests itself only when nature, through hunger, signifies that it is time to eat. The fact that a babe will eat when not hungry is a sign that the sucking muscles of the mouth are reflex and only cease to be so after the senses have taken direction.

The child puts the thing in his mouth to complete his idea—he has the sensations *see* ball, touch *ball*, and he now seeks the sensation *taste* ball. He will also try for the sensations *smell* ball and *hear* ball. It is most interesting to watch these tests and to see the child's delight, when, after repeated failures to secure any response to the effort to hear, a watch or shell is put to the ear, and he adds the sensation of hearing to the others.

ASSOCIATION, OBSERVATION, ATTENTION

Nerve Currents. We have seen, then, that sensations are the first things of consciousness and the basis of all mental development. But sensation is only possible through the nerve current, which carries it to the brain and registers it. Without this nerve current there could be no sensation; so in our first analysis we overlap into the physical.

This carrying and registering of sensations constitute a physical thing, making demands upon the delicate nervous organism and, when unnecessary, absorbing energy which should be used for pure physical growth. Here we may repeat our caution against overstimulation in the form of forcing new sensations upon the child.

James says, "The first weeks after birth are passed in an almost unbroken sleep by human infants, and it takes a strong message from the sense organs to break this slumber." At just what time the slumber is broken and the incarrying nerve current registers impressions on the brain, it is difficult to tell. It seems, indeed, that registration of first sensations is made several times before the circuit is complete from the point of sensation back to motory nerves, and the recoil of the body in case of pain from the object is made.

The second sensation when registered finds its predecessor in possession. Fleeting as the sensation may be, it has yet left some trace, which is reproduced or imaged in the mind. The second sensation is associated with the first, and by this repeated process, observation, attention and memory develop.

The process from pure sensation to the complete acquisition of an idea admits of far more analysis than we have space to give, and observation and study of the process open a boundless field of delight to the mother who will take the trouble to follow it. It is the birth of the ego of the soul.

PHYSICAL GROWTH

Weight. Physical growth is clearly indicated by weight. The normal, well-nourished child should gain from four to eight ounces a week up to about the sixth month. After that the gain is less —not more than from two to four ounces. There are sometimes periods in which no gain is made, as when teething, but a record of the weight should be carefully kept, and if the gain is not normal and average, *find out the reason why!* After the first year, the weight is apt to vary with seasons, and other conditions which make it less important as a guide. By this time, however, other indications arise which will enable the mother to realize when things are wrong.

Teething. At from six to eight months teething begins. This period, though often a trying one, should be passed without difficulty if care is given to matters of diet, and provision made for plenty of fresh air and sleep.

In healthy children there is very often fretfulness and poor sleep for two or three nights. There may be less of appetite so that only one-half the usual amount of food is taken; there is salivation or drooling and often slight fever; there may be other symptoms of indigestion, such as vomiting or the appearance of undigested foods in the stools. In delicate children, all of these symptoms may be much more severe. They usually last for from three to four days.—Holt, *Care and Feeding of Children.*

Nature is making an extra drain on the child at this period, and so care should be taken that environment does not add to the drain; let the child be disturbed by attention from others as little as possible. If this policy has been followed from the first, it will not be difficult now. The little child has nothing to do but to eat, and grow in mind and body. That is his business, and he attends strictly to that business if given half a chance. Life is a thing of absorbing interest to him, and it is not necessary to amuse the baby. More often than not we merely distract him by adding more sensations than his little mind can assimilate.

Baby Tender. A simple and inexpensive baby tender is a box about three feet long and two wide, with sides about two feet high. The box should be carefully padded on sides and bottom, with the padding curving outside over the top so that there are no hard places anywhere. By putting in a fresh cloth each day, the tender may be kept sweet and clean. The padded sides of the box protect the baby from drafts, and with a few simple toys, he will play happily for hours, following his own sweet will and lying down to sleep when he is tired. A smile in passing, an inspection to make sure that all is well, and a careful watching of the clock to make sure that feeding time is not forgotten—and the baby is taken care of for the morning.

If a child seems ill, call a physician; do not experiment. Under normal conditions this method of "care" will be found satisfactory.

Habits. Care must early be taken that bad habits may not be formed. The most common habit in infants is that of sucking the thumb or finger. This habit is one of the first formed and one of the most difficult to break, and one which may store up life-long regrets for the child, as it causes misshapen mouth and crooked or protruding teeth. The mother who permits this because it keeps the child quiet or because the habit is hard to break makes a great mistake, since it aggravates the flow of saliva in the mouth and causes indigestion and frequently mouth and throat infection. The rubber "pacifier" is an abomination which it hardly seems needful to warn against. There is no excuse to be offered for its use.

Other bad habits develop early—earlier than seems possible. Some are the direct result of incorrect clothing or of malnutrition, and if simple methods do not control, the advice of a physician should be sought.

The habit of yielding to control cannot be too early fixed, and this will do more to aid in breaking up bad habits than anything else.

Teaching the habit of little courtesies should not be overlooked. It is as essential that we should have good habits as that we should not have bad ones, and the little one whose mother takes a toy or a forbidden article with a "please let mother have this," teaches not only submission but courtesy as well.

DIRECTED MUSCULAR ACTIVITY

New Sensations. After the first few weeks the little child is never still a minute, except when he is asleep. It is by exercise that the body must grow,

and growth, as has been said, is the business of his life. Gradually, as the consciousness of a world *not me* comes to the child, he begins to reach out for the things of that world—the bright things first, the ball which hangs from his cradle top, the ray of sunshine that plays across the bed, and mother's face. Baby has reached another milestone in mental development. Yesterday, as his arms moved restlessly about, they touched the pretty ball which he had watched for some time. By this he added a new sensation to his idea of ball, and so a new interest. He has learned that this new sensation was gained by the accidental reaching out of his arms in the direction of the ball; so today, instead of aimless motion, he *decides* or *chooses* to reach the ball. It may require effort to direct the motion, and he is not capable of sustained effort, but when he sees the ball hanging before him he will have the desire to repeat the sensation *touch ball* and will try to direct the little hands in that direction. The child may touch the ball many times without the sensation being distinct enough to make sufficient impression for him to complete the association, and so have the desire to touch the ball. The wise parent will place the ball within his reach, but will not give it to him.

Form and Distance. It is through these directed efforts that the child gains the concrete ideas of form and distance. The first efforts for muscular self-direction, reaching, grasping, holding, are rapidly followed by the effort to move the body from place to place, and sitting, creeping and walking follow each other in natural order.

Vocalization. The efforts at vocalization begin early. From the cooing sound of happiness and the low fretful murmur of discomfort grow the universal mother call "ma-ma-ma." None of these first sounds is imitative, and the fact that the word for mother in the most primitive languages is the same the world over indicates that this is a natural and not an imitative sound. It may be at first involuntary and unintended, as is the low cooing, but the mother-heart recognizes and quickly seizes upon this call, and it soon becomes a voluntary, imitative sound.

Imitation plays a large part in the development of vocalization, and here again the child learns through effort and failure. The baby will watch a bird and listen attentively to its song, and suddenly there will come a triumphant "Tee" from baby's lips. Just how often he has tried to make that sound one cannot tell, but the delight on his face is of attainment through effort. The little mind seems to focus in this special desire, and after the first two or three triumphs, progress is rapid. He now easily learns the names of the things around him. If he learns these names from adults, he will probably not talk baby talk. This is not so much baby talk as the expression from older children of what baby talk ought to be. Children will often invent a language for the baby, and they will be able to understand him, when others cannot. It is sometimes impossible to avoid this, as it grows out of the association of the children with each other and is entirely unconscious, but the folly of adults talking baby talk to a child and putting upon it the burden of unlearning their senseless forms of expression cannot be too strongly condemned.

PLAY

Self-Centered. In play the child of this period is purely self-centered. He will play with an adult, though a machine would do as well, provided it performed the offices of the person. He gains as much pleasure on the hobby horse which he rides back and forth as he does trotted on the leg of the man. This may admit of modification when the man is his own father and the element of familiarity and association enters into the game.

He will play alone, perfectly contented, for hours, with a single toy, the less complicated the better. Fond relatives

often make the mistake of giving the child many complicated toys, and insisting upon his giving attention to them. His little mind cannot grasp the new things, nor his imagination find a use for them, and he will almost invariably discard all of them for one battered, cherished plaything.

He does not particularly care for other children and his plays are mostly sense plays. As soon as muscular self-direction begins he finds joy in these activities and will center upon the accomplishment of some special feat, such as climbing upon a low chair or stool; the triumph of attainment is most interesting to see. This is nature's own way of leading the child into power, and he will be perfectly happy if allowed to exercise his motor impulses at his own sweet will.

All of these things contribute to the growth of the child, and little arms and legs grow strong with the exercise. The child may be trusted to find his own ways of amusement and should be left to his own devices as far as possible, but he should not be allowed to become "lonesome."

The Fancy Playmate. The child of three to six nearly always has a fancy playmate or friend. This is not always the solitary child, though the fancy play child is apt to be more "real" when there are not a number of real children to interest. Mercery is the companion of a little girl of four, who will call her by "telephone" in the morning, go to the gate to meet her, open the door with the joyous announcement, "Mother, Mercery is here," and will then sit on the floor and play with her for hours. When the child is lonesome, the mother's suggestion that Mercery come, will immediately interest, and in a few moments "they" will be playing happily together. In family conversations the little girl will gravely announce that Mercery has a new dress or Mercery's mother is going to a party, or something else suggested by the topic of conversation. This little girl has a sister of twelve and a brother of ten, both too old to share in her baby life, but "Mercery," she tells us, "is just as old as she is and not a day older." The fancy companion of babyhood develops into the day dream of later childhood.

MORAL DEVELOPMENT

First Conditions. Our moral column in the chart at first is almost vacant. During this period the child is self-centered and egoistical; sweet, lovable and dependent, yet without any of the traits which in their larger meaning we term moral. We have, however, entered some qualities in this column. The child early shows manifestations of pleasure, or, more strictly speaking, of pleasing sensations, and by opposite forms of expression will also manifest discomfort. Frequently, at a very early age, he shows what mother calls "temper." He begins also to manifest signs of submission, acceptance to conditions of his own environment, and frequently the reverse quality—rebellion. This is shown in his very decided protests when he has acquired the habit of wanting to be held or rocked. Protests against light or darkness follow at a much later period. Indeed, it seems that the principal pleasure of the child at the beginning comes from the sense of touch.

Submission and Obedience. Submission at this age merges into obedience and a recognition of conditions which must be obeyed, and a child of six months should have the habit of obedience fixed. Self-control is the necessary accompaniment of obedience, and yet neither of these terms can be used at this age in the moral sense; moreover, the obedience so carefully taught by the mother may be upset completely by two or three days of "spoiling." Dependence, unconscious trusting, making the child yield readily to new influences, is perhaps the strongest and indeed the only moral trait of this age, though when we pass out of the period of infancy into what is commonly known as babyhood, the moral problem becomes more difficult.

Desire to Please. The first emotional life is subjection. Pleasure and pain are correlative, and we see the signs of both manifested early, while one of the first of objective emotions is a recognition of like manifestation in others. From this dates the foundation of what will in the adolescent age become the sense of good and bad or right and wrong. Good in the babe is that which pleases those who minister. Bad is that which displeases. Out of this grows a desire to please or a desire to be good, to secure the manifestations of pleasure in others. This at first is a purely egoistic desire. Later follows obedience to command to please others, the manifestations of displeasure at disobedience being unpleasant to the child. Out of this grows a recognition of command, as law, and the recognition of law as a thing to be obeyed. In the development of this sense the observing and imitative faculties of the child play an important part. He is quick to note if precept and example differ, quick to note evasion and untruth, and will soon learn to imitate both.

Cultivation of the Moral Nature. This should begin in the home with the earliest signs of mental life. It was a profound student of human nature, as well as a great priest, who said, "Give me a child until he is seven years of age and the world may have him the rest of his life." In the first awakening of his imagination the child plays with words and ideas as he has played with sand; there is neither right nor wrong, neither good nor evil. Falsehood is born only of fear. His sometimes apparent cruelty is but curiosity and ignorance, and a few words will change this into pity and sympathy.

We must recognize that there are certain tendencies to evil, that falsehood is not taught, but born of fear, and that traits and characteristics have been transmitted to him from those of whom his life is a part, the long, endless chain of the ages. But still it is possible to instill into the child's mind and heart the desire to be good, which will each year become more and more a factor in fixing right ideals. Too much care cannot be taken at this period that the foundation of character which is unconsciously building every day shall be "founded firm and true, flat on the nether springs" of truth and honor. Be afraid to do a mean or an untrue thing in the face of a little child—afraid, lest in the years to come, when you have forgotten, it shall come back to you again and you be condemned in the life of the child.

Stories. The insatiable desire for stories is one of the traits of the baby age, and these stories should be simple and adapted to the content of knowledge already gained. The child will also tell stories of his own, endless ones, often without apparent meaning, but, like the hieroglyphics of his drawing, they indicate an effort to express the working of the ever active little mind, which is groping towards real life and knowledge. In the selection of stories one finds opportunity for the giving of moral data; not that the stories must be of the goody, goody kind, but that they shall always ring true and teach the great lesson that life in its ending sums up—that only that which is true shall endure.

In the chapters on *Language* and *Reading* in this volume are many beautiful stories, with directions for telling them. In the body of this ten volume REFERENCE WORK are numerous myths, always interesting to young children.

"The heart is a garden; and never a seed
Dropped into its fertile mold,
But grows and grows, be it thistle or rose;
Weed or blossom, its leaves unfold.
Our thoughts are the seeds that grow to be
The plants that shall live through eternity."

KNOWLEDGE

Limitations. We are apt to think of the child at this period as learning rapidly, and yet it is surprising how very small is the content of his knowledge. Children see hundreds of objects without these objects producing sufficient lasting

effect upon the consciousness to hold them in memory, and we have but to converse with children about the simplest things of their everyday life to realize this fact. Stanley Hall says, "There is next to nothing of pedagogic value in the mind of a child of this age." Most of his knowledge is acquired by his own concrete experience.

The city child gets his idea of a cow from a small picture or model and learns a description of the animal by rote. From his experience he is led to think of the cow as but little larger than a mouse. His country cousin laughs at this description, but this same country cousin will describe a cow as the Jersey bossy that comes to the gate each night to be milked. Only when he has seen other cows, black or white or spotted, and associated them with the Jersey, will his conception of cow be complete, and he often needs help in making this association.

Tests have been made to determine the content of the mind of the child at this age, and all agree that there is very much less of actual knowledge than had been supposed. What he has consists of numerous imaginary things of misfit associations, which he must readjust completely before they can be used for practical value. Just when the child reaches a sense of number, extending from two ones to two, is doubtful. Objects stand out as units in his mind, so that he sees in two cows but one cow and one cow. By the time of the kindergarten age he may have reached two cows or two balls; then if he is given one more his mind will grasp two and one, but if given two more it will readily grasp two and two. The concept of three seems difficult.

Mental Dependent Upon Physical Growth. However wonderful may be the process of mental growth, it should never be forgotten that in the child—and in the adult as well—mental growth is entirely dependent upon physical growth. There can be no perception without sensation, and we have seen that sensation is entirely dependent upon the nervous system. Keen perception incurs correct sensation, and the whole content of our knowledge is dependent upon the correctness of these sensations. It cannot be too strongly emphasized, therefore, that the first consideration of the mother should be the physical well-being of the child, and especially caring for the normal, natural development of the delicate nervous system. The gift of parenthood is a privilege and a responsibility. The child is not a toy to amuse the fond parent or the chance guest, but is a sacred charge, and there is none other more high or holy.

PREPARATION FOR THE BABY

The coming of the child into a home requires a readjustment of the home, that the parents shall forego certain social pleasures and consider first the well-being of the little stranger. Too soon he is gone from them, perhaps by their very unwillingness to make the sacrifice for giving the necessary care.

"If we knew the baby fingers
Pressed against the window pane
Would be cold and stiff tomorrow,
Never trouble us again,
Would the bright eyes of our darling
Catch the frown upon our brow,
Would the prints of baby fingers
Vex us then as they do now?"

How many of them slip away because the mother has not taken the trouble to inform herself as to the things necessary to keep them. How many times my heart has ached for the fretful, nervous child carried about by the mother who wanted to keep up the old social pleasures. One young mother boasted that she had taken her baby to moving-picture shows at night since he was six months old, and often in the daytime before that. We have seen mothers nursing babies in public places, not because it was nursing time, but because the fretful, nervous little ones who ought to be at home were tired with the noise, the motion, the confusion and the registration upon his sensitive little brain of hundreds of foreign sensations; the act

of feeding quieted him for a few moments and "gave the mother a little peace"—and more likely than not added indigestion to the rest of the nervous strain!

But long as a year or five years may seem, how quickly it is past!

"Where is my baby? Where has my baby gone?
Hush, hark—whose making all that noise?
Why, there's my little baby!
He's one of the big boys!"

Every hour of what may seem self-sacrifice will find rich repayment in a few short years in the strong normal boy or girl growing into efficient manhood and womanhood. Life can give us no richer recompense than this.

MOTHERHOOD

The fair young earth hushed all her sounds of life,
As evening gathered in the western sky,
And calmed the sportive winds, that she might hear
The world's first mother's first fond lullaby.

A rapture such as mothers share with God,
By sweet melodious cadences expressed;
"My child! part of my heart in human form—
My living thought, plucked from my throbbing breast!"

How good was God to give such balm divine
To sinning Eve bereft of Paradise!
To grant her, mourning over Eden lost,
To find new Edens in her baby's eyes!

And every mother, crooning o'er her child,
Catches the same sweet rapture from the skies,
And, though shut out of earthly Edens, finds
In mother-love, a sinless paradise.

Each height of bliss but measures depth of woe,
And mother-joy is matched by mother-pain.
Eve's gentle heart bled o'er her sinning child,
And Mary wept o'er hers who had no stain.

Mothers alone drink sorrow's deepest dregs.
Did God need sympathy, that he should deign
To grant to woman, through her mother-love,
Some comprehension of His love and pain?

Mothers alone climb joy's most rapturous heights;
Here, too, they touch the heart of love divine.
Oh, Father, God, how very good Thou art,
To grant us joys that else were only Thine.

A partnership with God is motherhood;
What strength, what purity, what self-control,
What love, what wisdom should belong to her
Who helps God fashion an immortal soul!
—Mary Wood-Allen.

SECOND PERIOD

CHILDHOOD TO YOUTH—FROM SIX TO TWELVE

Ye are better than all of the ballads
That ever were sung or said;
For ye are the living poems,
And all of the rest are dead.
—Longfellow.

The Transition. The passage from infancy into childhood is not definite and distinct. At five John was a baby; at eight he is a child. Just when he passes the border line it is difficult to know, yet the differences between the two periods are strongly marked. The child himself begins at five or six to assert freedom from babyhood, and will tell you with pride that "he isn't a baby, he is a boy." Babyhood to him means dependence, and independence is a strong characteristic of the period into which he is now entering.

PHYSICAL CHANGES

Rapid Growth. The transition shows marked physical changes. Rapid as growth has been before, there is a year in which it is twice as great as in any one year preceding. Just when this year may come varies, but the beginning of the ninth usually finds it past. The head is now almost as large as it will ever be, and the brain has attained to the weight of maturity by but a few ounces, but the delicate association fibers by which the various brain centers are coordinated are still in a formative state.

New Teeth. A change in dentation takes place; the "baby teeth" are lost and the growth of a new set begins. The first set was complete with 20, but the new has 32. It is a mistake to think

that the baby teeth do not count. Care should be taken of them, and in case of decay the child should be taken to a dentist, as the healthful condition of gums and nerves is one of the first essentials in the growth of the second set. Too much emphasis cannot be given to this question of caring for the teeth, as it is now an established fact that apparent dullness, stupidity and even actual illness may be the result of malnutrition caused by bad teeth.

GENERAL HEALTH

Tendency to Disease. Because of rapid growth the physical powers of resistance are less, and this is the age of childhood diseases. Deaths among children are more common than among infants after the first two years are passed. The period of childhood preceding and leading up to adolescence is the critical one of physical life, and it is rendered more difficult by the mental and moral traits which mark it.

Food. Special attention should be given to the nourishment of the child. Frequently abnormal tastes develop because of chemical need in the system which is unsatisfied. Clay and chalk eating are instances of this. Change of diet will often cure this tendency, and threat of punishment or of suffering will have no effect. Such a habit, if persisted in, should be brought to the attention of a physician, who will be able by prescription or suggestion of foods to supply the demand.

Sleep. The child should have not less than ten hours' sleep out of the 24. The daily nap of babyhood is interfered with by the school hours, but an early light supper and eight o'clock bedtime should be an established habit, and the household should be so ordered as to conform to this rule. All that has been said in regard to rapid growth, tendency to disease and child mortality may be repeated here to emphasize the importance of this statement, for sleep is nature's restoration.

Contagious Disease. The danger of contagion in the diseases of childhood may be greatly lessened by keeping the general health of the child good. And here is a word of caution to the mother: these childhood diseases are not harmless. Hardly one of them but leaves a fearful trail behind it—weak eyes, defective hearing, weak heart and, in some cases, defective mentality.

Needless Sacrifice of Child Life. It used to be accepted that children must have the measles, the whooping cough, the mumps and other diseases peculiar to their years. Medical science teaches us that this is not true, and the fearful sacrifice of child life made every year is wholly unnecessary, and can be avoided by maternal and community care. The last is difficult to obtain until there shall be an awakening on the subject. If smallpox comes into a town everyone is disturbed and the quarantine extends to every living thing with which the unfortunate has come into contact; smallpox, however, does not claim so many victims as does measles among our children, and we are as unreasonable in closing our eyes to this danger as we would be to ignore the quarantine sign of smallpox. These children's diseases are spread by pets in the household, and by children who are allowed to go to school when slightly ill, or by children from a home where such illness exists. In large cities an effort is being made to control these conditions, but in smaller towns and rural sections nothing is done, and disease is spread broadcast which might have been confined to one child.

Quarantine. The individual mother can do much in this direction. Where a child shows symptoms of illness, fever, loss of appetite, headache, any one of the various disorders which experience has taught may be the beginning of trouble, the child should be at once separated from the other children of the household until the disease develops. If it is nothing—well. If it is diphtheria or scarlet fever, how much is gained! The

probability is so strong in favor of "something serious" that it is better to err on the side of caution.

If it proves to be a contagious disease, all of the children of the household should be taken out of school, for no mother should want to pass her misfortune on to another home, and children may have been sufficiently exposed before the first quarantine. We have heard adults scoff at this quarantine. One woman said: "I know it isn't necessary, for I slept with my sister all of the time that she had the measles, and I did not take them at all!" But who shall say to how many children she carried them?

Rules of Health. We must now discuss a very important subject, one upon which the health of the child and the man may depend as long as he lives—the habit of regularity in the expulsion of waste matter from the body. If conditions are normal, a certain amount of waste matter is thrown off constantly, and the habit of expulsion is as imperative as that of eating.

The mother should be as zealous in her interest of the one as the other. There may be many reasons why a person does not care to eat at a given time, but a failure of the organs of excretion to act means something seriously wrong, and should be looked to at once. There is hardly a teacher who does not know that children are permitted to go sometimes two or three days without any action of the bowels. Children have even been known to take pride in prolonging this time as long as possible, and the parents are either criminally negligent or criminally ignorant. No child should be permitted to leave home in the morning without the mother's certain knowledge that he has eaten breakfast slowly, taken time for proper mastication, cleaned his teeth and expelled the waste matter from his body by a normal action of bowels and kidneys. By the first he gives food to the body, by the second he insures good digestion and by the third he keeps the body free from disease. "What?" the mother asks, "would you have him stay at home from school?" Yes, and again yes, if that be necessary. But it will not often be necessary. The *habit* will soon become fixed.

Physical readiness for school is much more important than anything else. The clean waist or fresh ribbon is an item, but the clean body and fresh mind are vastly more important, and when the forces of the nervous system must be drawn upon because of abnormal physical conditions, there is little left for mental energy, and the child is dull and stupid.

Physicians tell us that many of the physical ills of adult life today grow out of the failure of parents of a generation ago to give heed to these things. It was assumed that nature would assert itself, and the child follow the impulse thus given. But children, from timidity or haste, will stifle the impulse, utterly unconscious of the harm that is being done.

There is no consideration so important as the physical well-being of a child. Mental and moral health depend upon it, and nothing should stand in the way of nature's normal functions and physical development.

THE STUPID CHILD

Often a child seems backward or stupid, falls behind in classes and fails to find his place among his playmates, and so misses all-around development, because of lack of the normal development of some of the five senses. The parent and the primary teacher should be watchful of backward children, and discover what is wrong with as little calling attention to the deficiency as possible.

Sight and Hearing. The most common defects are of sight and hearing. In both cases the child should be brought to the attention of a physician. The defect in sight can usually be corrected by glasses, and this should be done without delay. A defect in hearing, if con-

genital, is without remedy, but a simple operation will often correct an ordinary trouble, and the defect should not be accepted as hopeless until every effort is made to correct it.

Malnutrition. Often even the children of well-to-do parents suffer from malnutrition, because the mother may have no appreciation of food values, and utterly fail to select those things which properly nourish. Such children are anæmic and listless, given to abnormal cravings for unusual and unnatural foods, and fall behind in classes from sheer lack of physical strength.

When poverty is the cause of malnutrition, the State, and that means, in these cases, its representative, the teacher, should take some steps to correct the trouble. The teacher should make sure that the child is given that chance for fair development that the State owes to every child. The provision of school lunches in the poorer districts of our large cities has gone far to solve this problem. In this direction Norway and Sweden are many steps in advance of the United States. The child of the poor is to become a citizen, no less than is the child of the rich, and the duty of the State is but its duty to itself.

Dentation. Malnutrition is often caused by poor and decaying teeth. Here it hardly seems necessary to call to the attention of the parent the importance of the *habit* of caring for the teeth. This habit should be *fixed* by the time that the child is three years old, but should not be forgotten by the parent through the years of childhood and the first few years of the adolescent period. It is a very easy thing to put off or to forget, and one which, neglected, stores suffering and expense for the future.

It is also now understood that some troubles of the eyes may be caused by decayed teeth, or by wrong-growing roots and nerves of teeth coming into conflict with the nerves of the eyes. The movement to have the teeth of public school children examined is an exceedingly good one, and will go far in the direction of improved health and normal mental growth.

Adenoids. The growth of adenoids is one of the most common causes of child-stupidity, as well as of feeble-mindedness. A child who seems to be defective, unless the reason is plainly understood, should be examined for adenoids, and a simple, painless operation will give the child his chance for normal development.

Parents and Teachers. The stupid and backward child is helpless in the hands of those whose duty and privilege it is to care for him, and to solve the problems of his physical and mental conditions.

Both should study the children in their care. It is not enough that they shall be well clothed and well fed. And let not teacher or mother say, "That is the parent's business," or "That is the teacher's business." It is *your* responsibility—you who understand—and you have no right to shirk your responsibility.

PHYSICAL SELF-DIRECTION

The repeated inquiry of the child is, "What can I do?" This doing must have a purpose. He is no longer willing to build sand houses which the evening tide will wash away. In this, too, his individuality asserts itself—he wishes to choose the occupation and the manner of its doing. He will watch an adult at construction, but when he builds his own boat or house he wishes to do so without interference. Piece after piece is fitted and rejected; over and over he inspects and balances. If he turns to an adult for advice or help he is quick to take back his own task with an eager "I can do it now!"

A boy 12 years of age built a railroad of his own. From old dry-goods boxes he constructed a depot, and from the same source he secured ties and rails. At an old foundry he found two sets of wheels, for which he paid with money

earned by doing little tasks about the house, and on these wheels he constructed a flat car. The road was built with complicated curves and switches, and when completed he had nearly a quarter of a mile of track. But he had no way to construct an engine, and the next summer found him in the railroad yards, making friends with train men, riding in the "sure enough" engines. He is today a successful railroad man in one of the largest systems of the West.

This is the period of rapid development of physical self-direction and of skill in the use of hand and brain together. It is the age of construction, and the boy should have his box of tools and the girl her sewing bag; indeed, the girl may well be given a box of tools also. The introduction of manual training into the upper primary and intermediate grades in the public schools has been an important step in the right direction in utilizing this tendency.

Stanley Hall says: "It is the age of external and mechanical training, reading, writing, drawing, manual training, musical technic, foreign tongues and their pronunciation, the manipulation of numbers and of geometrical elements, and many kinds of skill have now their golden hour, and if it passes unimproved, all of these can never be acquired later without a heavy handicap of disadvantage and loss."

Often natural abilities and tendencies will assert themselves at this age which may make for the good of the future. Sometimes adolescence will bring a change of interests, and the childhood tendency seems to be lost, but it may assert itself in after years. A successful lawyer, who had given his life to study and hard mental work, found much pleasure in his later years at wood carving, which he had learned in his boyhood.

Curiosity becomes one of the dominating traits of this age, a curiosity that has more of purpose than of the restless *why* of the baby, for the child begins to find out *why* by his own efforts and investigations. He repeats the experiences of babyhood only on a broader basis, and reaches success through failure, gaining physical, mental and moral strength with every effort. Concentration develops to an extreme degree, and the child will forget everything else in his intent following of the hour's occupation.

Curiosity is a part of physical self-direction; the child wishes to find *why* that he may *do*. He wants to understand the laws of *things*. He wants not only to "see the wheels go round," but to know what makes them go round. Often this curiosity is mistaken for destructiveness, when it is, in fact, the foundation for construction.

PLAY

Motive Element—Comparative. The nature of the play changes from purely sense and motor plays; the child turns to those with motive and purpose. The boy plays marbles and ball, races and spins tops, and in all of these the idea of competition must enter. The girl of eight or nine joins eagerly in these plays, but is unwilling to accept the decision of competition and will soon swing back into quieter forms of amusement. Dolls to her age are very real. This is assigned to the development of the mother instinct, though it may be also a part of the tendency towards personification.

The play of the girl is more apt to be an imitation of adults; girls play keeping house, making calls and teaching school. Boys will play dolls with girls, but never with each other, the very nature of the play being antagonistic to their superabundant energy; but they will be storekeepers, policemen or even fathers, following the girls' lead. Among themselves, however, their plays tend more to action, and catch ball, leap frog, tug of war and dare base are more typical.

Collections. "Making collections" is a part of the play motive, and is sometimes carried to extremes in solitary children. Girls collect buttons, ribbons, bits of cloth, pretty pieces of glass or

postage stamps, while boys collect almost everything under the sun. These are choice treasures and should be respected by older folk. It is the development of the instinctive personal right, property right. An imaginative child will often personify these articles. A little girl of eight collected buttons and named them all. Another child collected stones and assigned to them certain qualities of good and bad. A little boy of nine, whose mother threw his precious colored papers into the fire as "trash," was most indignant and retaliated by burning some valuable books.

Development of Property Idea. Properly directed, this tendency may be used to lead the child to respect the property of others as he wishes them to respect his. Parents and others who fail to see the value in this phase of child life and ruthlessly destroy the little one's treasures, are paving the way for that disregard of property rights which is manifested in vandalism, or worse, in the adolescent period.

Spirit of Adventure. Nearly every boy has a desire to run away. He wants to become a robber. He wants to cross the sea, to find the hidden treasure, to "search for the rainbow pot of gold." He always wants some other boy along, however. Two or three will dare where one would be afraid, and so he plays in gangs; if surroundings permit, he will dig caves in the woods and play pirate and wild Indian. City boys who are hampered in this natural development frequently get into trouble with the authorities for pranks which are merely efforts to find an outlet for this natural trait.

Girls have these same tendencies, though modified by the training which usually begins before they are out of long clothes. Few girls, however, escape without many hours of rebellion against the customs and conventions which enclose them. They should be allowed to play as do their brothers. The exercises, the running, skipping, jumping, will store up health and strength for them no less than for the boy. They should be encouraged to engage in out-door sports. This will mean much to them later, not only in health but in counteracting the tendency to morbid self-centered ideas sometimes characteristic of the girl in the third period.

Love of Nature. The little child hears the leaves whisper. He understands the songs of the birds. He knows where the robin builds the nest and where the squirrel stores his nuts; he feels in his heart the kinship which is between all living things—birds and butterflies and blossoms; these are his friends, who tell him wonder tales of a world which the adult does not know. In the heart of every child is the love and the longing which led Agassiz when

> "He wandered away and away, with Nature, the dear old nurse
> Who sang to him night and day the songs of the universe.
> And whenever the way seemed long, or his heart was about to fail
> She would sing a more wonderful song, or tell a more marvelous tale."

Day Dreaming. To the imaginative or solitary child this is a period of day dreaming. He lives in a world of his own making, peopled by the folk of his own fancy, and this world often seems as real to him as the one of everyday fact and actuality. In this world he is always loved and honored; he is a hero, or a prince in it, and he is always doing good and great things. Though the adventure spirit may have led the boy into pirate schemes or the girl into running away, the day dreams are always altruistic. This tendency may be used for character building in the creation of high ideals and the desire to attain to them. The day dreamer who imagines good may be led to long for good in his real life.

PRIMITIVE SENTIMENTS

Fighting. It is in the public school that the child begins to learn many of

the great lessons of life—the development of his own ego in the presence of the development of the many individualisms about him. Many of the best of these lessons are to be found in the playground, in the give and take of the game, the live and let live which his fellows force upon him. Here he learns that the boy who will not assert his own integrity, who will not defend a weaker comrade, who will strike a girl, either by word or blow, and who will make a jest of sacred things, is a coward and merits the contempt of his fellows. He makes keen distinctions in these things, though because of his limitation of experience he is not always far-seeing and may mistake the lesser for the greater cause. In the boy the strong advocacy of the cause leads to combinations, and he would settle all questions in the primitive way.

This spirit of fighting present in the normal boy is one which calls for all of the wisdom of the adult; the child must be helped to a right estimate of values, of the things worth fighting for. When these are at stake he should be afraid not to fight.

The Gang. The gang grows out of the instincts treated later in this period under the second cause for disobedience in children—the inability of the child to understand the viewpoint of the adult, and the feeling that he understands those of his own age and is understood by them. It is this bond of mutual understanding which leads the gang to dare where the individual would be afraid. The gang differs from the clan spirit of adolescence in that there is no recognition of individual loyalty to the whole, though there is the appreciation that the gang must stand together, and the fellow who "snitches" or tells on another is often harshly dealt with. The gangs of boys, however, seldom reach the point of definite organization until adolescence. The gangs mark the development of the social spirit and should not be wholly condemned, yet they should not be ignored by parents and teachers. Under ordinary conditions the amusements of the gang are harmless enough, though they play robber cave and pirates; under wrong leadership, however, they may become a menace to the morals and future usefulness of the boys, and for these reasons they should not be left entirely without adult recognition.

Correlatively, though the gang spirit begins at from 11 to 13, this spirit is individualistic. In the competitive games it is "to see which one wins." There is no sense of the team play which develops in the adolescent and helps him to a larger view of the social scheme and personal responsibility to the team, the crew or the fraternity. The transition from one to the other is imperceptible, and is an important change in his social apperception, fitting him for manhood's realization that life is for service.

Put the Gang to Work. A recognition of the gang spirit and an earnest effort to direct its energies along right lines will carry children safely through this spirit. Children will enter heartily into any suggestions which give them full scope for their own initiative, and at the same time have in them an element of the adventurous and unusual. An instance of this is found in the "swat the fly" movements, which have been carried on largely by children. The "bird census," which had for its purpose the care and protection of the birds instead of the destruction of them, was entered into eagerly. The Big Brother movement which started in New York and has since spread to many other large cities is an instance of what can be done for the individual boy at this age. The parent of the normal boy whose surroundings are good, yet who seems determined to do the abnormal and the unusual, may be saved much anxiety by recognizing this as a passing phase and allowing it as far as is possible and consistent with the child's good to work itself out in natural ways. Attempts at suppression often lead to deception and end in disaster.

CHILDREN'S ORGANIZATIONS

The social feeling of the child at this age differs from that of the adolescent, a fact which we are just beginning to realize and to work out in the form of separate organizations for children of this period.

In the Boy Scouts' relay race from Washington to Chicago in 1913, the youngest runner who carried the message 100 yards, was five years of age, but this organization, while not rejecting the child, is still strongest in its appeal to the early teens in the beginning of the adolescent period. There are many children's organizations planning to reach this age, having in them the element of competition, and these are valuable means of giving moral training. One of the best-known organizations is that of the Anti-Cigarette League, which had its origin years ago in a woman's great love for an invalid brother, because of whom she tried to do something to reach out to save other boys. The organization has since grown and extended its influence, having members in all parts of the country.

Stanley Hall (*Youth: Its Education, Regimen and Hygiene*) lists other organizations for boys:

Captain of Ten, for boys from eight to fourteen. The Ten are the fingers, and boys are taught to use their hands. The motto is "The Hand of the Diligent Shall Rule," and the watchword is Loyalty.

The Agassiz Association is perhaps the oldest of children's organizations, founded in 1875, and now has 25,000 members. This is not exclusively for children, but is largely sustained by them. The purpose is a study of nature, and it furnishes practical courses of study in the sciences.

The Princely Knights of Character Castle was founded in 1895 for boys from 12 to 18 "to inculcate, disseminate and practice the principles of heroism, endurance, love, purity and patriotism." The organization is along the line of adult secret societies. The pledges for the first degree, in addition to the keeping of the secrets of the order, are for total abstinence from intoxicating liquors and tobacco, and for the purity of life and language.

The American Humane Society has organized about 35,000 Bands of Mercy. The motto is "Kindness, Justice and Mercy to All," and the pledge is to be kind to all harmless living creatures and protect them from cruel usage.

The boys' choirs of the city churches are usually organized into club form under the direction of the choir leader, and they plan camping expeditions, excursions and outings. The influence is always good, and while in most no pledges are made, the effort is to discourage the use of tobacco and intoxicants and to "live worthily." Waiting lists for choir membership are always long, as parents appreciate the advantage of the physical and moral, as well as the musical training given.

The organizers of the Camp Fire Girls have also appreciated the need of a purely children's organization, and have supplied this with Blue Birds, which enlists the little girls of seven, eight and nine, interests them in the things of the home and teaches them valuable lessons. The local organization is called a Nest and is directed, as is the Camp Fire Girls, by a guardian. Having won certain honors in the Nest, the Blue Bird flies away and becomes a member of the Camp Fire.

Boys have always been more or less organized, either from their own initiative or through the interest of their elders, but the Blue Birds' Nest is the first general attempt to find something specially for the little girls, and its success is assured.

These organizations are listed with the thought that any parent or teacher interested may interest the children in them. The Source Research Bureau, 104 South Michigan Avenue, Chicago, will be glad to help out any who may wish further assistance along these lines. Often purely local organizations in the community or school can be made very effective.

DISOBEDIENCE

A phase of this period which often causes great distress of mind on the part of parent and teacher is the disposition of the child to disobedience. The disobedience of the baby grows out of a mere desire to obtain something coveted or forbidden. He sees the bright object upon the table and merely wants it. The injunction "no" means absolutely nothing to his own mind if by his own effort he can accomplish "yes." But the disobedience of the child of eight to twelve often seems sheer willfulness and a determination to do the thing that he is told not to do. The little girl who earlier gave promise to the loving mother of being good often surprises and grieves by becoming a perfect tomboy and apparently forgetting every rule of conduct so carefully instilled.

Dorothy always had been a docile child, but one morning she startled her mother by making reply to an injunction in regard to a neglected duty with a vigorous, "I won't do it that way!"

"Why, Dorothy!" exclaimed her mother. "What do you mean? You have always done it that way."

"I know that I have. That's just why I won't any more!"

"But there isn't any other way to do it!"

"There is, too! There's always lots of ways to do everything. I'll find a new one, or I won't do it at all!" And she flounced out of her room, leaving her mother feeling as if the house had tumbled about her head.

Causes of Disobedience. This disposition to disobey grows out of two things. The years from babyhood to childhood have been filled with experiences, which, commonplace as they may seem to older folk, are very wonderful to the child, who has no realization of their limitation and thinks that he knows as much as his elders. He is very sincere in this belief, and because he is constantly making new discoveries to which apparently older folk pay no attention whatever, his estimate of their knowledge and ability falls below par. The boy decides that parent or teacher who commands or advises does not understand. He will take the advice of a playmate of his own age, or perhaps two or three years older, in preference to that of an adult, and he is usually willing to pay the price when such advice proves disastrous.

This is true of girls as well, modified to a great extent in the case of the latter by the difference in their interests and forms of play. It cannot be too strongly emphasized here that the girl should be allowed to develop as naturally as her brother, and that all of the things which he does in the natural expression of his physical life are as much to be accepted from her as from him. She will soon outgrow the disposition to be a tomboy.

The second of the influences towards disobedience is the spirit of independence which asserts itself at this age. The clinging, dependent baby, wanting to be loved and caressed, has grown into a self-willed child whose strongest trait is to assert his own ego in the face of the world.

He has not learned to control or adjust his own action to the wishes of others. To him the thing which he wishes to do is paramount, and he cannot understand the mental process by which another reaches a decision that is contrary to his own. A command out of harmony with his own wishes or impulses seems to him a violation of his own individuality—a thing of which he is conscious but which he has no terms to define.

The child is the center and ruler of his own little kingdom and has no realization of any world outside of his own, nor any duties or responsibilities which he may owe to that world, and he cannot understand any intrusion of authority into his kingdom. Any authority which he recognizes at this time is apt to be merely the authority of the stronger, and he frequently treasures in his heart a determination to get even, when he is big, with the adult who forces obedience.

Punishment. This is the age in which the question of punishment becomes most difficult for parent or teacher. The baby, who could be loved into obedience, or who from some slight punishment came forth smiling and happy again, its little lesson learned, has become a girl or boy who often must be labored and struggled with for hours to be brought to a willingness to yield to authority. Even when brought to a sense of his own wrongdoing, the child will often hold out and refuse to acknowledge the error. Physical punishment seems to have little effect, and with each repetition its influence is dulled. The boy who says, "Dad will lick me but the licking doesn't last long," and so goes to his wrongdoing, is a difficult problem, and it is questionable if ever there is an excuse for corporal punishment for a normal child. Certainly that excuse cannot be that such punishment will do the child good. Frequently it is merely the disposition on the part of the adult to vent his own displeasure or anger upon the child who must be made to suffer for the trouble which he has caused.

It is nearly always possible to let the offense bring its own punishment. This is often difficult and will require much thought and careful study to bring it about, but the child who, because of disobedience, is deprived of the anticipated pleasure or made to do without something he very much desires, will soon learn that disobedience is not the expedient thing, and will make an earnest effort to conform his life to that realization. Here again enters a complication. By the very limited range of his experience he often does not understand and will seem to have been willfully disobedient, when he was making an earnest effort to conform to what he thought to be the wishes of the adult.

The Heart of the Child. Nowhere is adult understanding of child life so severely tested as in the question of punishments. Solomon said, "Train up the child in the way he should go, and when he is old he will not depart from it." But how should he go? Certainly not along the hard, barren road of adult life and thought. Our happiest memories are those of childhood; perhaps of a day when we disobeyed and left the uninteresting schoolroom and spent the day out in the woods, listening to the birds and looking up into the sky, forgetting that we had disobeyed, longing to be a great general, to lead a conquering army, to rescue a princess. "The thoughts of youth are long, long thoughts." We didn't mean to be bad, or didn't want to play truant—we—we just couldn't help it! Ought we to have been punished? Well, perhaps. But maybe if the teacher could only have understood, that afternoon wasn't wasted after all, for nature spoke to us, whispered mysterious secrets into our ears. Never does the heart of the child come into close touch with nature that the child is not made better and the man stronger for that hour.

We are studying the child mind and the child heart, and perhaps the time is not far distant when we shall be able to weigh the things which he does and the things which he does not do with fine understanding, and by love and patience we may be able to know what is best, that our discipline may help and not hinder his development.

LANGUAGE

Slang. A strong characteristic of this age is the use of slang. This has been accounted for by psychologists and students of language in two ways. One school will tell us that the child's vocabulary is so limited that he has not means with which to express himself, but the other and more plausible explanation is that his mind is filled with new ideas that are so wonderful to him that the ordinary expressions of life do not seem to apply, and he reaches out into a world of which he knows, and makes a vocabulary of his own to fit the fancied need. Notwithstanding many variations, there is much resemblance between the

slang of one generation and that of another, and striking resemblances are found in different languages.

The slang tendency belongs also to the adolescent period, where we shall discuss it again.

Children will often manufacture a language of their own and converse in it entirely among themselves. They will communicate with each other by means of picture writing, and will make-up secret alphabets which they will use for correspondence with each other.

It is questionable just how far these traits are individualistic. The development of the social nature, so pronounced at this age, probably had its influence here, though a solitary child will often work out a language, an alphabet or a series of plays and games almost exactly the same as those followed by children with whom he has had no communication.

Reading. The child at this age develops a taste for literature. Robinson Crusoe strikes a responsive chord in his heart—he would like to sail away on a ship to live on an island with a dog and a parrot and shoot savages. True, at night he would want to come back to mother. But he enjoys adventure stories and likes to imagine himself under like circumstances. Fewer adventure tales have been written for girls, and their enjoyment in those for boys is destroyed by the restrictions which life begins to force upon them. If the girl should venture to want to be a Robinson Crusoe and dress in grass cape and skirt, the same mother who smiled at the boys' aspirations would reprove her quickly: "Oh, but that wouldn't be proper for little girls." The girl, unfortunately, soon comes to take the same attitude, and she misses much that would work for the building up of independence and character. A little girl of ten rebelliously exclaimed: "Oh, I don't want to read about what men did all of the time. I can't ever do anything like that! Didn't women ever do anything?" The story of Jeanne d'Arc was told to her, and her face lighted with pleasure and interest. It gave her a new interest in the study of history.

Care should be taken that good books be put into a child's hands. Not goody-goody books, but books that without pointing a moral, still teach courage, truth, patriotism and loyalty. It is not enough to say of a book put into the hands of a child that it is harmless. His reading should be selected as carefully as his food or his clothes. Each book should have a purpose in the development of some trait of character.

Not that books should be handed to John or Mary with a command, "Read this, it will make you patriotic," but good books should be accessible to them; they should be given as gifts, that they may have an especial value. Unsuitable or harmful books should be placed on a high shelf, or better still, be kept out of the home. A boy of nine whom I know reads the *Jungle Books* and Ernest Thompson Seton's animal stories. These satisfy the imagination and the adventure spirit, and children will pass from them into biography, history and good fiction. The child who begins with valueless reading unconsciously comes to pass judgment and decides that it is time wasted to read; and when he has reached that conclusion it is difficult to induce him to change his mind and enter into a new field. Thus the opportunity to form a valuable habit is lost.

Books and Periodicals. There are many books suitable for children. The following list can be safely recommended as providing wholesome and enjoyable reading:

Arabian Nights' Entertainment
Louisa M. Alcott—
Little Women
Little Men
Jo's Boys
Old-Fashioned Girl
Under the Lilacs
Eight Cousins
Rose in Bloom
Jack and Jill

Hans Christian Andersen—
Fairy Tales
Thomas Bailey Aldrich—
Story of a Bad Boy
J. Andrews—
Seven Little Sisters
Each and All
Frances Hodgson Burnett—
Little Lord Fauntleroy
Sara Crewe
Racketty-Packetty House
Samuel L. Clemens (Mark Twain)—
Adventures of Tom Sawyer
Prince and the Pauper
Charles Dickens—
Child's History of England
Charles L. Dodgson (Lewis Carroll)—
Alice's Adventures in Wonderland
Through the Looking Glass
Mary Mapes Dodge—
Hans Brinker; or, The Silver Skates
Daniel Defoe—
Robinson Crusoe
Mrs. J. H. Ewing—
Lob Lie-by-the-Fire
Six to Sixteen
Edward Eggleston—
Hoosier School-Boy
Stories of Great Americans for Little Americans
Grimm Brothers—
Fairy Tales
Nathaniel Hawthorne—
A Wonder Book and Tanglewood Tales
Thomas Hughes—
Tom Brown's School Days
J. O. Kaler (James Otis)—
Great Admiral Series
Toby Tyler
Mr. Stubbs' Brother
Silent Pete
Teddy and Carrots
Tim and Tip
Charles Kingsley—
Water-Babies
Thomas Nelson Page—
Two Little Confederates
Alice Hegan Rice—
Mrs. Wiggs of the Cabbage Patch
Kate Douglas Wiggin Riggs—
The Birds' Christmas Carol
Timothy's Quest
Anna Sewell—
Black Beauty
Jonathan Swift—
Gulliver's Travels
Johann R. Wyss—
Swiss Family Robinson

There are many excellent children's periodicals. *John Martin's Book* for very little folk might have been mentioned in connection with our first period, as might also the *Peter Rabbit* stories among books which little children love. *St. Nicholas. Youth's Companion, The American Boy, The Boys' Magazine* and *The Wide World* are to be put in first rank on this list. *Popular Mechanics* is also a valuable assistant for the boys' workshop.

MENTAL DEVELOPMENT

Imagination. Imagination, which as we have seen plays so important a part in the child life—in the fancy companions of babyhood, in the plays, secret writings and picture making of the child, combining with the adventure spirit in the building of caves and the organization of gangs—depends to a great extent upon clear visualization—mental picturing, or imaging. This faculty takes the mental pictures already gained through books, stories and experience and combines them into new and often unexpected and novel relations. Out of these he makes a world of his own, and lives there in day dreams.

Too often adults mistake this tendency, and class the child as untruthful, when, as a matter of fact, the child reports truthfully, according to his own mental image. Nor should we hastily condemn the result. Of such dreamers are the great painters, poets, actors and writers made.

Sometimes these fancies enter into the things of his everyday life. A little girl whose mother dressed her very simply told of beautiful dresses at home, elaborate ruffles and endless ribbons, all of dainty white and blue, though brown had been the color the mother had selected as most economical. The child

wanted these beautiful things, and the longing for them was so great that she finally thought that she had them. She even told in what closet in the home they were kept, the closet of a guest room which was seldom opened.

The children to whom these stories were told knew better. The child was accused among her mates of telling lies, and the story was carried to the teacher. When questioned, the little girl insisted with violent sobs that she did have all of these things, and the teacher, who knew the conditions of the home, was at a loss what to do. Finally she sent the other children away and took the sobbing child upon her lap, and by gentle questioning discovered the pitiful love for the beautiful and the rebellion against the unlovely things of the child's life. Suddenly the little girl began to sob again, "I haven't got them! I did have, but I haven't any more!" Her beautiful dream had been shattered by her careless schoolmates. When a young woman, she became an artist and painted beautiful pictures.

Truth as a concrete moral quality has little meaning to a child; as an abstraction it has absolutely none. The child tells the things of his world as he sees them, and he does not clearly distinguish between the reality of the inner and the outer world.

Lying is born of fear. It is of the same instinct which makes the opossum play dead to deceive his enemy, which makes the man hide behind the rock in the fear of the unequal foe; this is the dominating instinct of all life—self-preservation. Man has brought this instinct into subjection through love, and lays down his own life for that of his fellows, but when love fails, the primitive instinct asserts itself and the man fights for his life.

We cannot deny heredity influence; we often see children who will lie with apparently no reason, but when heredity influence is present, environment is also likely to instill fear in the heart of the child, as well as to set the example of untruthfulness.

The distinction between imagination and untruthfulness should be held in mind always in dealing with children. It is often the key to their little hearts.

Memory. This is the age at which memory is most easily cultivated and longest held. Children should be encouraged to use this faculty and to store the mind with gems of literature. Rhythm will appeal even when the words may not be understood, and the value of such a storage cannot be overestimated. Memory seems almost a mechanical process, dependent upon rhythm, and there is no period when it is so easy to memorize. Often a child seems to have "learned" a lesson when he has merely gotten it "by heart" with no comprehension of the meaning. The instructor's cultivation of this faculty, therefore, should not be haphazard and at random, storing the mind with useless combinations of words. A child should be taught to visualize when studying, and the vision, rather than the words which suggested it, fixed upon his mind. By association he will correlate these visions and so have memorized a lesson, though not learned it by heart. The ability to visualize clearly is perhaps the first essential to a good memory, and when the instructor finds that the child does not visualize clearly, a patient effort should be made to help him in this direction. Encourage a child to observe closely, and to describe minutely the thing seen. Let him tell the things noted on the way to school: a flower bed, the kind or color of its flowers; a tree, how it grew, tall or bushy; a bird, its color, its way of flying, straight up into the air or from tree to tree and parallel with the ground. Then read a story containing descriptions of familiar things, and let children describe. Encourage minute description even when these are not given. This power of visualization should not be taken for clearness of sight. We may see clearly, yet not remember well.

Association is again a factor, as the thing seen or visualized must be correlated to something previously seen or

visualized in order to find its own phase in the content of the mind. Memory is a part of every power of the mind, entering into all of its activities, and so is one of the most important. Without memory there would be no past, the moment but just gone would leave nothing behind it, and life would have no meaning. Memory is quickly affected by physical condition, mere fatigue lessening its power. All of us have been too tired to remember, and serious illness may destroy it altogether for a time, so that the period before or during illness is a blank.

Will. One of the earliest traits manifested in the child is determination to do, this often in spite of opposition and advice. A child early learns to make his own choice; this decision first is one of impulse, later developing into more or less logical judgment, for which he can always give reasons satisfactory to himself. In the period of childhood this tendency becomes more decided and is one of the most difficult problems which those dealing with children must meet. The child's choice must be his own, influenced, guided and controlled as far as possible by the wisdom of adults, but still his own. The purpose of the teacher and the parent should be not to break the child's will, but to influence it by putting before the child the strongest motive in the form of that which is good and strong and true.

The development of strong character is impossible unless this trait is rightly influenced and controlled. The exercise of the will depends upon judgment, and the making of the right choice and ability to decide wisely before action make for strong character and efficient manhood and womanhood.

Every motion of the body from voluntary action is dependent upon the will. The book lies on the table. We note its name, color, size. Interest is awakened, but that interest comes to naught until we definitely decide to pick up the book. We must then will to reach forth our hands, changing the whole position of the body; definite muscular action is necessary to carry out the mental intent. So this function of the will power is part of the earliest mental development of the child, becoming in time, so far as muscular action is concerned, subconscious and definitely a part of every action. Habit is formed and the will power acts without conscious effort. When deeply concentrated on a subject we can note how it is necessary deliberately to take our mind, or will to turn, from this subject, and it is perhaps necessary to change the position of the body or to turn the attention of the mind to some other subject.

It is with mental and moral life that our study of the will becomes most interesting and helpful in our effort to understand and deal with the child. Here the greatest care and understanding are necessary.

Habit. The greatest function in the will is in the formation of habits. Right habits conduce to right living and noble character. Wrong habits conduce to wrong living and misery. The habits formed during childhood are the seeds of character. The teacher cannot give too careful attention to habits formed in school.—*Rocheleau.*

Reasoning. We have not yet found a place for pure reason on our chart, though we have seen in the first period that the child reasons, in the sense of judgment and choice. The unconscious analysis and classification of familiar objects on the part of a little girl was followed by the writer with great interest, and will serve as an illustration of how the foundation for reasoning is builded through the processes of attention, observation, association and judgment.

One of her first word combinations was a triumphant "See clock!" For some days "clock" meant only the one timepiece on the mantel, whose striking had attracted her attention. Then one day in another room she noticed a smaller, differently shaped clock, and concentrated her attention upon it several times before she triumphantly pro-

nounced it a clock. She had discovered a resemblance in spite of the difference in shape. Then she made a mistake, and a round ornament was doubtfully called a clock. On the discovery of the mistake she seemed to limit her class clock to the ticking sound, but a clock seen later in the house of a friend was finally classed as "clock sleep." This classification did not reach a complete concept, for the range of her experience had not given her enough precepts for the formation of a concept; but it was a form of concrete reasoning and the basis upon which gradually and unconsciously a complete concept would later be built by the laws of memory, observation, association and classification.

Thus the child builds up his little world. The Jersey cow in the barnyard gives milk. The black Holstein in the pasture also gives milk. The Jersey and the Holstein are cows. The newly purchased brindle is a cow, so his assurance that the brindle gives milk is positive. He builds up many false and absurd conclusions, but the association rather than the process is at fault. By this process he builds his boats, his kites, his railroads and "robbers' caves," and from the results of these efforts he deduces his laws of things.

Clear visualization and correct memory are the basis of the process called reasoning, which in its concrete form now becomes a part of the child's mental life. Sensation gives to him the new idea or image, and that image is compared, by the aid of memory, with the other images gained by experience.

Reasoning Always Concrete. The child reasons with things, and a recognition of this fact will simplify many of the problems of the teacher. Pure mathematics on this account has no meaning to him, and the old-fashioned juggling with figures in the schoolroom was worse than useless. We learned arithmetic in spite of it, rather than because of it.

Relations and Visualization. The recognition of the relations or differences of things, dependent upon the ability to visualize or to image clearly and to memorize the old sensation, becomes the basis of the process of reasoning. The first recognition of two objects as having the same quality, round, and so both being balls, was the beginning of the process, which, however, experience must greatly enlarge.

With the new sensation comes an association with the old, association based upon similar or dissimilar qualities recognized in the new sensation compared with the old. A child recognizes relations but does not so quickly recognize differences. He does not make clear abstractions by which differences are eliminated for the purpose of generalization, nor has his experience been sufficiently extensive to enable him to make enough comparisons. For this reason his final concept, or class idea, is incomplete. It is, however, true so far as it goes, if the mental processes have been accurate. It is this accuracy upon which clear thinking depends.

MORAL DEVELOPMENT

All of the things of which we have written have to do with the moral development of the child. It is not possible to separate this from the things physical and mental. Although the child may truly be said to be unmoral, yet, as the years pass there grows a keen mental realization of moral values which in our next period we shall see develop into a sense of moral responsibility. No influence for good is lost at this period, no influence for bad but leaves its trace, perhaps for a lifetime.

Emotional Life. The child passes out of a purely subjective emotional life into that of the objective, in which things play an important part. This we have touched upon in the tendency to collections and treasures and the personification of these things. He does not expect the adult to understand. He merely asks that he shall be let alone. A normal, healthy child is not sensitive to

approval or disapproval of adults. He is, however, apt to have special fancies for some one of them, and builds his standards and ideas after them. Criticism from them is apt to move him strongly.

Hero Worship. The child builds his heroes sometimes from story, sometimes from those with whom he comes into contact in his daily life—the teacher, the parent, the older brother or sister, a relative, or a passing stranger. He especially admires some quality, as strength or beauty; or perhaps his attention is caught by a smile, and his imagination does the rest. All of the qualities which seem to him fine and great he ascribes to this one upon whom his worship is centered. Almost the only essential for a hero is that such a one shall be older than the child; other qualities which seem important later mean nothing, and the favorite may be the local policeman or wagon driver.

This tendency, however, may be directed, and so made a foundation for the building of high ideals.

Child Biography. The influence of books is felt in the development of the moral life. Some children build up a world of their own from the characters whom they have loved in the books they have read, and here is added an important reason for directing children in the selection of books. Child biography also begins to interest. Unfortunately, there is too little of this accessible, and a great advance will be made when, through the study of a child life, we shall be able to give the children lessons about real children.

But the children of fiction may be made real friends. The characters in *Little Men* and *Little Women,* Little Lord Fauntleroy, Paul Dombey and Little Nell,—these we have loved and enjoyed. David Copperfield, and Maggie and Tom Tulliver in George Eliot's *Mill on the Floss,* are other well-known children of fiction. The teacher or parent can very profitably interest the boys and girls in books which tell about the children of great works of fiction.

Patriotism. A sense of patriotism and love of country should be early instilled. In the case of the little folk, this should commence with the teaching of songs, patriotic plays and stories which inculcate high ideals.

Child Trust. This is also preeminently the age of faith. In a few years the boys and girls will begin to question everything, with an assurance equaled only by their egotism. But the child is trustful, and he accepts the word of parent and teacher as a final statement of the truth. No one should dare to lie to a child or to deceive him in any way, for the child is building the standard of a lifetime, and harm incalculable may be done by influences which tend to lower these standards. His little universe will be shaken to its foundation by the first realization of untruth on the part of parent or teacher, and, depend upon it, he will never forget. A grown man said recently: "I liked my third-grade teacher well enough until the day she lied to me; after that I never had any use for her, and I used to lie to her on every possible occasion. I wasn't an especially untruthful child either; indeed, I believe quite the reverse, but I had the feeling that Miss A. did not care for truth; it seemed sort of wasted on her. She would plead and argue with me, but it seemed to me it was only for effect. I couldn't forget that she had lied to me."

Truth to the Child. A child's questions should be met frankly and answered truthfully, as far as lies in the power of an adult, whose province it is to instruct. A frank "I do not know, but we will look it up together," is far better for the child, as well as for his future estimate of the instructor, than the attempt to hide ignorance by misstatement, and it is better that the child should be led along the way of truth by careful guidance, than that he should follow the

path of error with folly, ignorance and evil.

In all of the things of everyday life he is building, building, and we who stand by, and give to him the materials from which he must build, cannot turn away, and think our own hands clean, if in the end the structure is a failure, if it go down before the storm winds of life.

We are only beginning to realize what this means to us, to the home, to the school, to the State. It is not enough that one child shall be cared for and guarded. When life puts a wrong upon a child, that wrong reaches out far, and touches all children. It is not enough that we shall love and cherish our own; we must help them all. Judge Ben Lindsey says: "The greatest problem which confronts the American nation today is the moral problem of the child."

We hope that by these pages we have given something towards the solution of that problem.

MOTHERHOOD RESPONSIBILITY

Motherhood is a profession, and the woman who chooses it as her form of service to the world should study the things of her profession as carefully as a civil engineer, lawyer or physician. It is *her business* to know the things which shall make for the development of efficient manhood and womanhood, just as much as it is the business of the civil engineer to know how to build a bridge. If he is ignorant or careless, if he has adopted a profession to which he is willing to give only a divided interest, so that the bridge falls in the time of its greatest strain, and human life is lost, the world does not excuse and say, "He did not know." *It was his business to know.*

Never a train crosses Eads Bridge at St. Louis that the name of the man who built it is not remembered and some tribute paid to him. The name of Colonel Goethals will be remembered so long as the Panama Canal shall endure.

So when the life has been builded so strong and true that it will stand the strain and stress and give to the world that service which it has a right to require of everyone, the mother heart and mother love will be remembered. The mother who, with infinite patience, labors for her boys and girls through the long years, is building for tomorrow and for manhood and womanhood, and she will find her reward. This reward will be greater than richest jewels placed within her hands, the greatest reward which life can promise or eternity fulfill.

BOY WANTED

"Wanted—A boy. How often we
This quite familiar notice see.
Wanted—a boy for every kind
Of task a busy world can find.
He is wanted—wanted now and here;
There are towns to build, there are paths to clear.
There are seas to sail, there are gulfs to span,
In the ever-onward march of man.

"Wanted—the world wants boys today,
And it offers them all it has for pay.
'Twill grant them wealth, position, fame,
A useful life, and an honest name.
Boys who will guide the plow and pen;
Boys who will shape the ways for men;
Boys who will forward the tasks begun,
For the great world's work is never done.

"The world is eager to employ
Not just one, but every boy
Who, with a purpose staunch and true
Will greet the work he finds to do.
Honest, faithful, earnest, kind—
To good, awake; to evil, blind.
A heart of gold without alloy:
Wanted—the world wants such a boy."

THIRD PERIOD

ADOLESCENCE TO MATURITY—TWELVE TO EIGHTEEN

I remember the gleams and glooms that dart
Across the school-boy's brain;
The song and silence in the heart,
That in part are prophecies, and in part
Are longings wild and vain.
And the voice of that fitful song
Sings on, and is never still:
"A boy's will is the wind's will,
And the thoughts of youth are long, long thoughts."

—*Longfellow.*

Contrasts. Up to this period we have found it necessary to make few

distinctions between the growth of the boy and that of the girl. They show much the same mental and moral traits, but those of the boy have, perhaps, a more positive character. This is largely due to the difference in education and to the fact that girls have come to realize that older folk expect these differences.

At this age, however, real differences begin to manifest themselves, differences which should be understood by the parent and teacher and about which the children themselves should be carefully instructed, that they may "know themselves." The age at which this period begins varies. Usually, girls at 12 show marked indications of physical change. With boys it is delayed until 14 or 15. With the physical change come mental and moral changes which are quite as marked.

We have studied the process of development of the mental powers, and we now note that all of these are affected by the new life. Reasoning, which has been in terms of concrete relations, we shall find now greatly broadened, and entering into every form of mental life; the youth thinks out his own problems and answers his own questions. By the time that the middle part of this period is reached, language analogies, impossible before, become toys with which the mind plays. The story telling of childhood develops into logical narration, and composition in literature, music and art are natural productions, often rich with promise for the future. Talents and abilities heretofore unrealized, develop and become compelling motives, and a new world is opened before the heart and the mind of youth.

PHYSICAL DEVELOPMENT

Growth. Following our chart, we take up the physical life first, and here again we note a year of rapid growth. The boy and the girl increase in height at the rate of about three inches for three years. Height usually reaches its maximum in a girl between 13 and 14, while with the boy growth may continue to 17. Height seems to be the thing nature is most seeking to obtain. Later the figure will fill out and broaden, but now "the child is all arms and legs."

The Heart. During this period of rapid growth the capacity of the heart is greatly increased. This increase causes intensified blood pressure throughout the body, and a rise in temperature, so that the adolescent becomes impatient of additional clothing, often scorning the winter overcoat and rubbers. This rise in temperature is not to be depended upon, however, as it fluctuates with the irregular growth of the body. Colds are frequently contracted, when, under similar conditions, at a time earlier, no such inconvenience resulted.

Nerves. The nervous system responds to this blood pressure and intensifies the instincts and interests which are so closely allied to it in their development. Children almost phlegmatic sometimes become impetuous and nervous, and those quiet before, now develop a tendency to noise and self-assertion, loud talking and shouting. The destruction of property is also a common form of nervous manifestation. Girls with a particularly sensitive nervous system have at this time a tendency to hysteria, and should avoid excitement. The heightened pressure also causes the tendency to blood flushing or blushing, which is the response on the part of the heart to any nervous excitement or irritation.

Sense Nervousness. Sense perception becomes more acute and peculiar sensitiveness to color, sound, tastes and smells develop, one of the often noted instances of this being the adolescent love for perfumes. Certain musical tones frequently affect keenly, and often a special key or note will seem to awaken interest, or perhaps cause nervous excitement. New musical tastes develop, and often the child who has shown no interest or ability in this direction will be found to have a "voice" or an "ear."

There seems to be a love for experiment in this direction, and the adolescent finds peculiar joy in vocal expression. This is indeed the age of the senses. All of the senses are keenly alert to experiment upon experiment, discovery and conquest of the world, the longing for life, to feel, to see, to know new sensations, new experiences, to reach out into the boundless depths and claim all the world.

Craving for Excitement. The problem of education is how to direct this tendency that it shall find natural expression and fair returns in pleasure and enjoyment. There is a craving for excitement, for new sense experiences, for intoxication, which is unconsciously impelling and controlling. This craving for stimulation is perhaps the principal reason why the cigarette habit so easily fastens itself upon youth and grows stronger and stronger, the one cigarette which satisfied at first failing to meet the craving and the number growing from one to twenty. For every unnatural stimulant during the sense period, nature exacts a high price. She is herself putting great demands upon the physical and nervous organisms, and those interested in youth should be careful to watch for those abnormal tendencies and grip them by new interests.

Awkwardness of Youth. This has been called the awkward age, and few young people pass through it without agonies of self-consciousness, reaching often to times of despair. In self-defense they frequently assume an attitude of "don't care" and defiance, which often makes them very difficult individuals with whom to live. The reason for this is natural, and one not within the control of youth. The rapid physical growth is unequal, and the nervous system is strained to maintain a balance, being unable because of immaturity to coordinate movements. The youth is sincere in his statement that he can't help it, but he does not understand the literal truth of this statement.

Adults should not entirely ignore these manifestations, as the youth should not be led to give up efforts at self-control and self-direction. Admonition, however, should be carefully administered, and, above all, should never be administered in public, nor should a mistake committed in public growing out of this condition ever be more than mildly commented upon. Depend upon it, the youth knows, and reproof, sarcasm or ridicule will only intensify his own embarrassment and make him more awkward, perhaps give him a distaste for social intercourse; worse than all, it will almost always lose for the adult the future confidence of the youth.

Physical conditions and their natural results should be understood by the parent, and the things of the youth's life be adjusted to put as little abnormal strain upon him as possible.

Voice. *Boys.* A marked physical change takes place in the development of the throat, and the voice of the pubescent boy falls an octave below that of the child. The change is irregular, extending over a period of from three to four years. During this time the boy has little control over his voice, and the resonance and pitch sometimes change even from one day to another. "He does not know how his voice is going to sound until he hears it." The range of tone is limited, often to but one or two notes, so that singing during this changing period is impossible. When the resonance finally settles, the voice of the youth may not fulfill the musical promise held in the voice of the boy.

Girls. The change is less pronounced in a girl, though the register usually falls. Sometimes, however, it tends to rise, especially in girls of nervous tendencies. This should be noted and the girl helped to overcome the tendency by watchfulness and care. The high-pitched voice is a positive misfortune for man or woman.

Cause. This change of voice is caused by growth in the larynx. In the boy the

glottis doubles its size. In the girl the ratio is from five to seven. This growth is sometimes uneven, and irregularities in vocalization result, causing a lack of resonance and a tendency to nasal qualities in the voice.

It is almost impossible to determine what the voice of the child will be, or what possibilities for development it may offer, until this age is passed. Vocal culture, however, should not be entirely omitted for these reasons, as the education of the ear gained by this training helps the child in attaining correct tones and correct resonance, and the speaking voice is improved even though the promise of a prima donna or a tenor is not fulfilled.

The irregularities in voice should not be commented upon in the presence of the youth, as the result is self-consciousness and embarrassment, and an effort at impossible control often leads to a habit of nasal tones.

BIOLOGICAL MATURITY

This is the age of biological maturity. Heretofore the child has been but linked with the past through his own parents. Now comes the linking of the future and the possibility of parenthood in himself. This is the race-preserving instinct; after this comes the self-preserving instinct, which controls the struggle for existence. These two are the dominating influences of all life.

"The adolescent differs from the child psychologically, especially in the development of these two great instincts, and the entire mental life of the individual is modified and determined by them." (Harvey.)

The beginning of the development of the race-preserving instinct is the strongest characteristic of the adolescent period, and the one upon which more than any other the development of this period depends. The physical changes which take place, while fitting the boy and the girl for manhood and womanhood and giving them strength in body and in mind to play their part in the world, are at the same time fitting them for parenthood, and this latter phase concerns and controls the first social feelings.

Up to this time the feelings of the child have been individualistic. Now the youth sees himself as a part of the world in which he lives. His individualism is not lessened, rather intensified. He does not understand the mysterious forces at work within himself, and so the readjustment is not always easy nor, from the adult point of view, normal. Struggle, and even discouragement and despair, grow out of the conflict of these new forces and the effort to adjust himself to the new social ideals. Therefore, unless the youth is helped to an understanding of himself, lasting harm and wrong may result.

Precautions. All of these phases of physical development are natural and should be normal. The child should pass into manhood or womanhood almost unconsciously and without any undue physical strain. This is true of boys as well as of girls. Both should have watchful care. If the period of young womanhood brings irregularities, pains and nervous disorder, every other consideration of life should be set aside to the establishment of normal conditions, and if necessary, she should be taken out of school for a year or two and given outdoor interests until nature can establish a true balance.

Perhaps at no time since helpless infancy does the child so need care, guidance, patience, love and sympathy as at this period into which he is now entering.

HABIT

Closely allied to the subject of physical growth is the one of habit. In our second period we touched upon some of the physical habits which should be fixed in the interest of health, but the scope of our subject now becomes more extensive and indeed may be made to cover the whole range of our chart, and all of education may be summed up in the word.

We find that our periods merge into each other, the habits formed in child-

hood often lasting through life and being the hardest to break. The subject admits of almost endless discussion, as almost every pose of the body is the result of long, fixed habits. Cleanliness, order, industry, accuracy, regularity,—these should be some of the things which the child of 12 has fixed and established, foundations upon which he may build.

The physical habits formed during adolescence are apt to take the form of peculiarities or idiosyncrasy. These grow out of self-consciousness, and may be outgrown as the period merges into that of maturity.

All motor skill is acquired through the establishment of a habit, by which nerves and muscles coordinate under direction of the will to produce a given movement over and over, until the motory resistance is broken and the movement is produced unconsciously.

The formation of habit is impossible until this coordination is complete, and until the lines of resistance are eliminated, when the action of the will is no longer necessary. When this point is reached, the changing or making of the habit requires a direct and more definite action of the will, as resistance is easier broken than rebuilt.

Physical Training. Here we may mention the advantage of our outdoor games and of the physical training now adopted by nearly all schools. Military training is especially good, the regularity, correct carriage and the sense of order and responsibility cultivated being among the best possible influences.

Wrong Habits. Oftentimes a wrong habit is formed unconsciously. This may be said to be always true in the case of children. Conscious formation of a wrong habit involves a decision of mind to violate mental and moral judgments and a deliberate exercise of will to do the wrong thing. A child does not weigh and decide; he simply chooses to do, and the doing becomes a habit without even a conscious realization of choice.

Peculiarities and Idiosyncrasy. The very awkwardness and self-consciousness of youth often lead to the formation of little physical tricks of habit, which, if allowed to go on unchecked, may develop into fixed personal peculiarities which are perhaps unpleasant or offensive to others. All of us have noted these peculiarities in adults, habits of which they should have been broken by admonition and watchfulness.

Bad Habits. Bad habits are those which interfere with or prevent the highest development, physical, mental and moral. Only careful guidance on the part of the parent and the teacher, and patient watchfulness on the part of the youth will prevent the formation of some of these bad habits. Few of us reach maturity without them, and always with them is a lasting regret for the hold which they have upon us. Nowhere is the responsibility of the teacher and the parent greater or its failure so far-reaching as in the question of habit formation.

Command has little effect in preventing the formation or the breaking of a bad habit, unless a motive which is strong enough to control can be made to offset the desire. Teaching that bad physical habits in boys and girls mean wrecked lives in men and women in the abstract does not always influence. It is better to carry the instruction further and show how they always mean blasted hopes, disappointed ambitions, loss of place and position, inability to win in the battle of life, and failure and despair for those who are coming after them. This idea can be presented strongly enough to arouse in the youth the desire to control for the sake of the future.

PLAY

The plays of adolescence are socialistic, demanding the heathen virtues of courage, endurance, self-control, bravery, loyalty, enthusiasm.—*Hall.*

Change of Interest. The interest of the child changes with adolescence. The girl puts aside her doll at about 12 years of age. Exceptions to this rule do not

indicate abnormal conditions or even retarded mental or physical development. Someone has said that the first baby is the last doll. This, however, may not be accepted without consideration. The playing with the doll is not always an indication of the mother impulse, though manifesting some of its strongest traits. The child who has had fewest dolls is apt to cling to them longest, and usually one of these cherished treasures is carried into young womanhood. Mrs. Carlyle played with dolls until she was compelled to lay them aside, and, when forced to give them up, rather than put her cherished playthings out of sight and find new interest, she constructed a funeral pyre and burned them with great form and ceremony. Usually, however, the doll is simply crowded out by new interests and the transition is an unconscious one.

The boy ceases to find interest in toy wagons and begins to struggle towards a place in the development of his world. If he is in the country this tendency asserts itself in the disposition to drive the team or to own a horse of his own. The ball games now become organized and the spirit of team loyalty develops. Plays become more distinctively modern and physical development more aggressive, and the superabundance of physical energy is worked off in football, baseball, rowing and all forms of athletic sports, in which the newly-developed social feeling finds expression in team play and team loyalty.

Value of Games. The overflow of physical life which is met by the encouragement of these games among educators and those interested in civic welfare is one of the most promising phases of our civilization, and the wave of interest in public playgrounds which has swept over the country during recent years, resulting in the establishment of open spaces and supervised playgrounds and swimming pools, will yield rich returns in better citizenship.

So long as the youth can be absorbed in the expenditure of surplus energy in these directions, the tendency towards introspection is lessened, and the dangers and temptations peculiar to this age are greatly reduced. This is true of girls as well as boys, both of whom should be encouraged in outdoor life, and the development of the social rather than of the individualistic feelings should be emphasized.

Cold Baths. Too much emphasis cannot be put upon the efficacy of cold baths during this period. These reduce the blood pressure and produce a healthful glow throughout the whole body, giving a sense of well-being which reduces the nervous tension to a minimum. The exercise of swimming should also be encouraged, as this brings into play almost every muscle in the body; moreover, the sense of sustaining the body in the water gives a peculiar mental stimulation, helping towards self-confidence and self-control.

Walking. The exercise of walking is also one of the best. This should not be hurried, and should in a sense be rhythmic, thus conforming to one of the most elemental impulses in human nature. Manual training and sloyd are among the best results of modern effort to find the best good for the child, and these, with vocational education, help the child to use his own hands as well as his mind and to become industrially independent.

ORGANIZATIONS FOR YOUTH

Perhaps the most valuable contribution to adolescent development has been the Boy Scouts and Camp Fire movements, which have given absorbing interests, new motives and normal outlet for social instincts and impulses. Read the article on *Boy Scouts,* page 363, and that on *Camp Fire Girls,* page 466 in Vol. 1 of this REFERENCE WORK.

College fraternity organizations have their value during the later years of adolescence, and college athletics have done much in the solution of the problems of the period.

DISCIPLINE

Discipline is perhaps the greatest problem of the adolescent age. While the youth is beginning to recognize abstract authority vested in the State, he rebels as never before against individual authority and restraint, and is quick to find a weak point in the character of the representations of authority and make that an excuse for complete rejection of control. He resents command, and can be best influenced through his new altruistic feelings or through ideals.

The methods by which the youth shall be controlled should be given careful consideration. Personal interest is perhaps the most efficacious, yet this must be most delicately used, as the youth is quick to resent any intrusion upon his rapidly developing individualism. The attitude should be one of recognition of his newly-acquired mental and moral powers.

Any assumption of superiority or an attitude of patronizing is sure to antagonize, and the rules of guidance, which have "worked beautifully" with the child, fail entirely with the youth.

Teacher's Influence. The personality of the teacher here counts for much; a strong, virile man in whose knowledge and ability they have confidence can hold pupils loyal to himself and carry the moral issue at stake, by this loyalty, when a weak man fails.

Ridicule and Sarcasm. Among the most common methods employed by teachers — and alas, sometimes by parents as well—is that of ridicule and sarcasm. Both may be likened to a two-edged sword, so dangerous that only the most skillful should presume to use them. They strike the morbid self-consciousness of youth and cut deep, though pride will hide the wound, perhaps with rebellion and defiance.

The excessive use of these methods nearly always indicates weakness on the part of the teacher, and certainly indicates lack of understanding of the nature and spirit of youth; it may reasonably be made a valid excuse for refusing to reemploy a teacher.

Responsibility of Selection of Teachers. Too much care cannot be taken in the selection of those who are to have the care and instruction of children at this age. Knowledge of the subject they must have, but quite as essential as this is a thorough understanding of children and an interest in their well-being, which reaches beyond examination day or the monthly check. Those who choose this work as their profession should look well to themselves that they have this interest in and love for children, for in no profession in the world are the results of wrong more lasting or the possibilities for harm greater.

Parental Attitude. Dawning maturity in the child is one of the most difficult things for the parent, especially the mother, to realize. She suffers anxiety and distress, and often the child comes to real harm because she does not understand.

Nothing is so important as the holding of the child's confidence at this age. This should be done even at the cost of discipline. It is not possible to tell how it can be done, as the temperaments of parents and child are both factors, but the parent must study to see situations from the point of view of the child, taking into consideration strength of temptation and limitation of experience.

An especial effort should be made to interest the youth in the things of the home by giving a sense of home responsibility. This is easier in the country than in the city, where so many of the old-time "chores" which naturally fall to the lot of the child are done by labor-saving methods, and where distances to and from school take much of the time which used to be available for these duties. But the interest may be held by encouraging the boys and the girls to take part in the family council, listening with consideration to their views and adopting them when possible.

They should now be treated as equals, not as children. Control is no longer possible, but it is possible to guide and direct, to implant high ideals and motives for action. The youth is quick to recognize his new status in the mind of parent and teacher, and it gives to him an additional poise and self-confidence, and helps him to find himself and his own place in the new world of maturity towards which life is carrying him.

And here a word of caution. The father who has been too busy to give thought to the trivial interest of the child of four, six or ten, who has felt "that the things of the child were not worth his consideration, but that when the boy becomes a man they will have common interests," is doomed to bitter disappointment. The bond of confidence must be woven through all of the years —first a tiny silken thread, the smile, the passing caress to the babe, the child story or plan, the youth's disappointment or hope—until during this period of strife and stress, when the youth's very nature shall seem to be fighting against him, this shall be a cable which nothing can break, binding the heart of the child to *Home*.

LANGUAGE

In the Formative State. Language is the expression of the thoughts, emotions and feelings. It is a corollary of the fact that the mental and moral life of youth is chaotic but increasingly formative, that his language shall be unstable. He overworks the words at his command and pounces upon new ones with unconscious interest and enthusiasm. He delights in new combinations and unusual forms; he experiments with words and their effects, and delights in results which have the force, if not the dignity, of epigrams. All of his life is an unconscious effort towards conformation of conventionality, while the rebellion against convention is quite as strong and almost equally as unconscious. He refuses the language of the books, often deliberately, but sometimes against his own wishes for fear of misunderstanding or ridicule, though on formal occasions or debates he is often stilted and pedantic. The adolescent has thus evolved a new form of language. He adopts without hesitation the words of the gamin or the criminal, and with no realization of their origin and often without understanding of their meaning, applies them to the things of his everyday life.

Language Problems. Just what to do with this tendency is one of the grave problems of education today. We would, however, take issue with that school which holds that the slang phrase should be ignored and children given free rein in the use of words. It is not possible that the child shall conform his language to the set model of the adult any more than it is possible that he shall conform his thought to that model, but in the one as in the other he can work in the right direction.

Use of Slang Should Be Discouraged. Educators and parents should line themselves on the side of pure English. The public press, the playgrounds and the streets will do enough to maintain slang and keep it alive, nor can it be denied that some of our strongest words have been adopted or rescued from it and found place in the dictionaries. Here Pope's rule may be cited with advantage:

> "In words, as fashions, the same rule will hold;
> . . . . . .
> Be not the first by whom the new are tried,
> Nor yet the last to lay the old aside."

There should be a conscious effort on the part of parent and instructor to teach discrimination in the use of words.

Expressions used at this period often cling for a lifetime and assert themselves, in spite of oneself, in times of embarrassment or emergency. A woman 30 years of age, who had spoken and written precisely for ten years, confessed that she dreaded to meet stran-

gers upon whom she wished, for any reason, to make a good impression, as she was almost certain to find these old tendencies asserting themselves.

Preaching and nagging on this subject, or any other, will have little result. The teacher must reach his end by roundabout means, keeping it always in sight and encouraging the pupils when results are secured.

Reading. Next to example, the best influence in this direction is reading and writing. Children should be led to read those writers who have shown nice discrimination in the use of words and given us well-built, well-rounded sentences. They should be encouraged to memorize both poetry and prose and repeat them aloud. The writer was first brought to an appreciation of the value of words by the recitation of Phillips' *Napoleon,* and after that consciously sought for word effects in Macaulay and Carlyle, reading both of these before old enough to appreciate the philosophy.

Writing. To influence the child to write, to encourage him to put his thoughts down in black and white, is an important influence in the use of correct language. Few children, unless degenerate, will write anything low or vulgar, even when they do not propose that anyone else shall read, nor will they use any of the slang expressions so common in speech. The very act of putting the thought upon paper clarifies it and visualizes the words in their true meaning.

For valuable suggestions on training in language and composition, read the chapter on *Language* in this volume.

Debate. Oral use of words under criticism is also an influence towards right selection and should be a part of school training. Debate teaches quick thinking both in the use of words and thought. Care should be taken that criticism be not too severe, and the appointment of a critic among the children is more effective than to have the teacher exercise this office. Nothing escapes the child critic, nor will he accept the expression of the playground as permissible in the schoolroom.

Caution for Teachers. When a critic is appointed from among the pupils or members of the society, the matter should be handled with great care by the teacher. Young people of this age are merciless critics and often unintentionally wound the feelings of their mates. The critic himself may be reminded to consider that he also is open to criticism.

Parental Influence. Parents can influence in the leading towards the purification of language, but their influence must be even more subtle than that of the teacher. The parent must not fail to understand the language of the child, lest the heart of the child close against him, nor must he too often call attention to the forms of expression, seeming to notice them or developing self-consciousness in the child in regard to them. A mother used one of the slang expressions of her 15-year-old son, thereby shocking his sensibility and bringing him to a realization of the unfitness of the words. The next day she carefully expressed the same thought, in correct form, and, noting his recognition of it, explained that she had given some time to finding a better form, that often it was necessary to make careful selections in the use of words, but that the correct form was really more accurate and satisfactory. She watched with interest for the result of the lesson, and was glad to note an effort towards more careful selection in the use of words. There had been no scolding or comment upon the slang.

MENTAL DEVELOPMENT

During the latter part of the adolescent period the mental faculties begin to reach towards maturity. Pure reasoning finds its place, and the young man and the young woman find real satisfaction and pleasure in pure logic and mathematics. Instructors at this age

should center upon mind processes and make sure that these are true and logical.

Maturity of the nervous system is necessary for full development of the mental powers. We have shown how this is true in the first part of our discussion of this period. Until coordination is complete, and harmony is established in physical development—until the "storm and stress" period is past, mental power seems to be held in abeyance, as it were. In the later years of the period, when this point of harmony is reached, the forces of mind assert themselves, and the youth "finds himself."

Sense Perceptions. The child's knowledge has been gained through the senses, and these sense perceptions have been classified and named according to the range of his experience. The youth reaches out and from these varied experiences gains new concepts. His powers of discrimination are more fully developed, and he sees relations and differences which before escaped him. Attention, observation, memory, discrimination and generalization form the elements in these processes, which work now, not only with sense perceptions and experiences, but also with mental experiences or concepts gained through his own mental processes. The study of language, mathematics and sciences should be urged during this period, as these form excellent opportunity for the exercise of the highest powers of the mind.

Growth of the Child Mind. We have followed the development of the mental powers of the infant and the child, and the processes by which he has arrived at a knowledge of the world about him, through the laws of sensation, sense perception, memory, association, observation, discrimination and judgment. We have now to consider the development of the mind of the adolescent as he approaches maturity, and the final attainment of the power to think and to reason.

By this we do not mean that the child does not think. Any discrimination between objects or ideas, any placing of two objects together to make another and a new one, any naming of one object as belonging to a group of objects, an act of memory or of imagination, an exercise of the will by which we make a decision or a choice—in all of these thinking is essential.

Maturity of Mind. But psychologists tell us that *thought* is the last of the mental powers to come to maturity. The reason for this we have seen. Life is primarily physical. A strong mind is only possible when it has the necessary accompaniment of a strong body. There may be physical life without mental life, as in the case of the insane, or idiotic, but there can be no mental life after physical death. Physical maturity must precede mental maturity.

There is no conscious change of psychological law by which the mind of the child works according to one rule, and the mind of the adult by another. Rather, the mental change which takes place during the adolescent period is the working out, or the fulfillment of, the law of mind, by which first sensation in the infant develops at last into reasoning—the highest power of the mind.

Laws of Thought. We have seen how the child forms his class, or group, ideas. We have now to note how the youth, slowly through the years of adolescence, completes his concepts, and through broader mental experience reaches to thought and abstract reasoning.

Formation of a Concept. The materials of a concept are presented to the mind through the senses, and are known as sense perceptions. One sense percept, or the knowing of one cow—referring to our second-period discussion—is not enough to give the concept *cow*. We must see many kinds of cows; to have an absolutely correct concept of cow it would be necessary for us to see *all* cows. More than that, our

sense percepts must be complete. We must feel that the cow has hair. We must hear that the cow can low; we must see and taste that the cow gives milk; must see that she has, or has not, horns; we must smell the fresh milk or the fresh, warm breath of the cow. All of these must enter into our sense percept of each individual cow.

Comparison. The second step of the formation of the concept is *comparison.* When we have the sense perceptions of *cows,* two, or more than two, we begin to compare them, to note wherein one is like or unlike another. One is red, one is black, another may be black and white. One has soft, silky hair, and that of another is coarse and harsh; one gives much milk, another little or none; one has long horns, another has short, curved ones; and so on, the more closely we examine, the more of difference and of likeness we can find. This process is called comparison.

Abstraction. But this process would give us but a confusing concept. We must now take into consideration those qualities which are common to *all* of the cows which we have seen. We must abstract these qualities from all of the other individual qualities, which may be possessed by two, or even ten of the cows, and consider only those qualities which we have found in all cows.

Generalization. Having done this, the next step is almost accomplished: we put all of these qualities into one class; that is, we *generalize* them, and so form a class *cow* which is distinguished from any other class, as *horse.* Not all cows possess all of the qualities which have been presented to the senses, but all cows do possess all of the qualities retained, and from which we have formed our our class idea, *cow.*

Denomination. Having formed our class, we must now mark it, to distinguish it from another class, a class which might possess some of the qualities which we have found in the cow, as, for instance, the goat gives milk, the deer has horns. So we must *denominate,* or name, the class which is made from our *generalization.*

The concept *cow* is now as complete as our experience will allow. We would have to see all of the cows in the world before we could have an absolutely complete concept *cow.*

Judgment. In the same way we form the concept *horse.* We have now two concepts. We find that, like the individuals of our class *cow,* the concept *horse* and the concept *cow* have many qualities in common. All cows eat, all horses eat. All cows have four legs, all horses have four legs. A horse is not a cow. So we compare two concepts, and by an affirmative judgment, or expressed comparison, we form a higher class, or genus, *animal.* Judgment, then, is the comparison of two concepts.

Judgment is exercised in the first formation of the first concept, in the first comparison of two sense percepts. This is the form of judgment of which we have spoken in our second period. The judgment attained by the comparison of class, or of concepts, is a higher form of mental power, because it involves greater experience, and more complex generalization and comparison. The broader the mental experience, therefore, the greater the power of the mind.

Positive Judgments. Judgments may be either positive or negative. First, they may take into consideration qualities embraced under both of the two classes, or concepts, and from that form the affirmation of the third, which will be a positive judgment.

Negative Judgments. We may find, however, that an affirmation which may be made of one concept may not be made of another, and by this comparison we will deduce a negative judgment.

It must be noted here, that judgments depend for their accuracy, or *trueness,* upon the accuracy of the original sense percept, and upon the accurate memory

of that percept, when it is brought forward for comparison with later percepts. So we see how important it is, as noted in the second period, that we visualize accurately, and also what an important part memory plays in the thought process.

Reasoning. We come now to the last step in the thought process. We have seen how judgments are formed from the comparison of two concepts. We now compare two judgments. From these two we form a third—a conclusion. Each judgment has been attained by the same processes—either by positive or negative comparison. In reasoning we may attain to a *conclusion* by a combination of affirmation and negation, or by two affirmations or two negations.

So we have the three processes of *thinking*—conception, judgment and reasoning.

Until a man can reason, he cannot be said to have attained to maturity. Upon this power of the mind all of the attainments of life depend.

Mental Experience. It is important, therefore, that the range of mental experience shall be as extensive as is consistent with the fact that the youth is equipping himself for the business of making a living.

James says: "Outside of their own business, ideas gained by men before they are 25 are practically the only ideas they will have in their lives. They cannot get anything new. Disinterested curiosity is past, the mental grooves and channels set and the power of assimilation gone."

Will. Will power is now at its best, and youth knows no limitations to effort.

"So near to grandeur is our dust,
So near to God is man,
When Duty whispers stern, 'Thou must,'
The youth replies, 'I can.'"

Will enters into every mental process, and is at the foundation of all moral development. The power to choose wisely and well, the will to follow right decisions,—these are the tests upon which life must stand or fall.

Memory. This is the golden age of memory. We have seen how memory plays an important part in thinking. The *results* of the thought process are given to memory's charge to be laid aside, as it were, for future use. It is through this process that the mind becomes a great storehouse, from which at will we may select those *ideas* or concepts which are needed for the "day's work."

Memory can be made stronger by special attention. "Napoleon was not content with only hearing a name. He wrote it down, and, having satisfied his eye memory, as well as his ear memory, he threw the paper away."

The youth should be encouraged to memorize the exact words of great writers, both in poetry and prose, and the value of these in later life should be frequently emphasized.

Educational Value of Reading. The careful teacher and parent will know what the youth reads, for tastes formed now will continue into maturity and even into old age. There is a vast storehouse of knowledge waiting for him. How unfortunate that he should be allowed to waste the hours with the best sellers, when Dickens, Eliot, Scott, Thackeray and Hawthorne only wait to be opened. In Shakespeare alone he has a mine of wealth, and his education is not complete until he can count Milton and Wordsworth, Keats and Byron, and our own Lowell, Emerson, Whittier, Bryant and Longfellow, among his friends. Gibbon, Macaulay, Hume, Carlyle and Washington Irving will give richest returns in language study, as well as in history.

The taste and habits of reading are formed between the ages of 14 and 25. After that, for the great majority of people, the serious business of making a living excludes any but such reading as pertains to that business or the picked-up magazine or newspaper. We cannot too strongly urge, therefore, that care shall be taken in the selection of

books, that these golden hours shall not be wasted in "that which profiteth nothing."

The youth may be led to wise selection by suggestion of those things which will interest. Let him find good books in the home, and let him feel that those of the home place a high value upon these books. A wise spending of money for a few good books for the home will mean more for the future of the child than any other one investment. The teacher can do much in this direction, and also encourage the youth to understand that the reading of good books commands respect. Encourage him to talk of the books which he reads, and so lead him to future wise selection.

Mental Habits. *Observation and Attention.* Upon the formation of the habits of close observation and attention depends most of our knowledge. There are those who, having eyes, see not, and, having ears, hear not the things of the everyday world about them. Since upon sense perception depends the formation of all of our concepts, it is impossible to have clear concepts, and therefore correct judgments, unless close observation and attention are given. It is, of course, impossible to attend to all of the sensations that are the product of sense perception, quick discrimination being necessary to decide what are of value. We touched upon the habit of close observation in the child period, when its cultivation is easier.

The adolescent is impatient of detail. He moves quickly from one thing to another. Too much explanation confuses, and he is unwilling to stop and closely analyze. He is fortunate, then, if correct mental habits have been early fixed, and he may at this period find the line of least resistance in the direction of right thinking.

Mental Loafing. Here we enter into one of the most important discussions of our study. It is an interesting question to put to an adult: "What do you do with your mind when you are not using it?" By watching ourselves to find the answer to this question, we gain some realization of the value of this subject. Many of us fall into a habit of mental loafing, until we are as much to be censured as the man who sits on the dry-goods box and whittles pine sticks. The mind drifts idly from one thing to another, until consecutive thinking and concentration are impossible. Many a strong mind has been deteriorated by this habit. Unreliability and vacillation are the results in manhood and womanhood.

The teacher should note these tendencies and help the youth to overcome them. They are sometimes the result of the child habit of day dreaming, but the habit of mental loafing is far more pernicious than this.

MORAL DEVELOPMENT

All the phases of adolescence which we have considered have to do with the moral development of the child. The law recognizes moral irresponsibility in children of ten or eleven; a little later they are by law held morally responsible for their own acts and therefore legally accountable. This legal status is in some sense a recognition of the period from the beginning of adolescence, and is supposed to mark the period of community responsibility. Among savage tribes the youth is ready to take his place as a member of the tribe or clan. Although we have prolonged the period of community dependence, we have held to the adolescent age as marking moral responsibility.

The youth makes keen distinctions between truth and falsehood, right and wrong, but such is the contradiction in his nature that he is not yet entirely able to control his life by these distinctions, or willing to adjust his interests by them.

Self-Control. Self-control should be one of the lessons learned at this period. So far as possible we have shielded the child, but the youth must be prepared to meet conditions of life which he can-

not control, and learn the stern lesson of endurance and self-denial. Endurance, the calm meeting of the trials and anxieties of life, is only possible when this first lesson has been learned, and no man is master of his fate until he is master of himself.

This teaching is part of the ethical training in Japan. In the training of Japanese youth we find many interesting and valuable things. *Bushido* has something of the same meaning as our word *chivalry,* and embodies the Japanese youth's idea of behavior, except that often we apply our word *chivalry* in the sense of courtesy to women, and this has no special place in the Japanese conception. But *Bushido* expresses the ideal of justice and patriotism, sympathy and love, and even embodies problems and the art of poetry. At the age of five the *Samurai* (son of a noble) is given a real sword, and this is supposed to typify self-respect and responsibility. At 15 he is given yet two other swords, one long and one short. These he must keep as long as he lives. To lose either is to lose some of the virtues which they symbolize. They have been made in a temple, and the smith who hammered them begins his work with prayer, and says special prayers in the construction of certain parts of the sword. They are symbolic of loyalty, and of self-control, and must never be drawn lightly. If a *Samurai* has a base cause to fight, he will not take one of these swords, but will get one not consecrated to the virtues. For instance, if a Japanese should turn against his sovereign, or against his own father, nothing could induce him to use one of the sacred swords.

Moral Habits. Here we enter upon one of the most difficult phases of adolescence. While we hold the child to moral responsibility at 14, still we find that his own moral judgments at that age have been influenced by so many conditions which often we cannot know and understand, that it is necessary to draw a line between moral responsibility and moral accountability. The bad moral habit is often the logical result of a bad physical or mental habit, which is to be considered in its moral aspect only after the age of moral responsibility is reached. Swearing is an instance of this, as are cigarette smoking and other habits which are for the consideration of the physician as well as the reformer.

Emotional Life. *Lack of Love.* During the first two or three years of the adolescent period the youth is little influenced by love. He will work successfully and with interest for one whose attainments command his respect, an element very strong in his nature, but an appeal to altruism or love usually falls short. He has a strong innate sense of right and of justice, which influences him in his dealings with playmates and others in his everyday life.

Lack of Home Interest. His interests are in terms of the new world into which he is entering, and seldom include the familiar things of home. The girl will long to go as a missionary and will have day dreams of social service while mother does the dishes. The boy longs to get out into the world—"to get a job"—while the kitchen garden needs weeding or the front lawn is unmowed.

This is not all selfishness. All of the things of home are an accepted part of the child's life. They have always been, and he does not consider a possibility of a time when they will not be.

Lack of Sympathy. Sympathy is a feeling entirely outside of his range. He does not understand pain in any but a subjective form, and his own pain is forgotten as quickly as it is over; hence the inefficiency of corporal punishment. He has no realization of causes or of motives. He has no realization of extenuating circumstances, and judges only by results. An appeal to the sympathy or pity of a child is useless, though it may be transiently successful if made on the hypothesis "How would you like to have this happen to you?" If he is highly imaginative he may be deeply stirred by this, but his mental image is of himself, not of the person or thing for whom the appeal was made.

Development of Love. At about the 14th or 15th year, however, a new element enters into the emotional nature of the youth, an element which he does not himself understand; this is one of the causes of his own mental and moral stress—the element of love.

The girl becomes fond of someone older than herself, works better for the teacher who appeals to her emotional nature, is influenced to greater effort for the sake of reward in terms of affection and kindness. The same is true of boys, perhaps in a more modified sense, and usually accompanied, too, by self-consciousness, which makes them fight the influence. The awakening of this new impulse alternates with hate in the degree of intensity of the awakening, and the child swings from one extreme to the other, not understanding his own mental impulses. A new spirit of devotion springs up towards those in the home, which, however, again the self-consciousness of youth is apt to suppress; oftentimes the parent despairs of being able to reach the heart of the child, when, as a matter of fact, the heart of the child is reaching out as never before to meet the home love.

Altruistic Feelings. Out of this spring the altruistic feelings to which we have before alluded. The child longs to sweep in the whole world in his affection. The girl decides to become a nun or pledges herself to missionary work, is interested in philanthropic movements and then swings to the other extreme and cares for none of these things. As the emotional nature of the boy throughout is more controlled by self-consciousness and has more outlet in physical life, so the manifestations of this new influence in his life are less decided than those of the girl. Both, however, should be care-carefully guided.

Change of Interest. During the years of childhood boys and girls are good comrades and share the same games and interests. Later follows a period of separation, which becomes almost antagonism. The boy looks upon the girl as a spoil sport and the girl thinks the boy rough and rude; from this they swing unconsciously into a period of mutual interest and attraction, and their love affairs become one of the problems of the teacher and the parent.

Each of these phases should be ignored as far as possible, each taken for granted during its term, and nothing of self-consciousness or introspection be fostered. The boy and girl are not apt to take their first love affairs seriously, except through the suggestions of adults. Unfortunately, adults are very prone to make such suggestions. Few of us are wise enough to keep "hands off" in this unfolding of nature's most sacred and beautiful instinct.

Adult Responsibility. Those whose work it is to direct the life of youth at this period should understand the motives and the influences which the youth does not comprehend, but which hold him as with bands of steel. So far as possible, this development should be accepted as the natural thing, and the child given such instruction as is necessary for him to understand himself and the mysteries within himself. Ignorance may sway his life into wrong and evil, but knowledge will make for strong manhood. The girl, none the less, needs understanding and guidance, infinite patience and love to bring the conflicting elements of her nature into rhythm, that she may enter easily and naturally into the duties which womanhood shall bring to her.

Hero Worship. This is also an age of hero worship, but heroes are usually found among historical characters or adults whose life brought them into public prominence. Idealism is truer now than in the child, and those to whom worship is given are more apt to possess mental and moral qualities than purely physical qualities. Napoleon has perhaps influenced more boys than any historical character. Lincoln and Robert E. Lee have helped boys in the building of character. In our day Roosevelt is a fair type of adolescent hero worship.

Unfortunately, in the education of girls the lives of few women are emphasized in the schoolroom, and the girl is apt to find her ideals among the men. An acceptable contribution to school literature will be the biographies of some of the world's great women, written in such form that school girls will be interested in them. A step in this direction has recently been taken. Well-known women have given lists of those whom they felt to be the world's greatest women.

As an aid in the education of girls, it would be well for teachers and parents to enter into this subject. First, let them find some of the world's great mothers, for motherhood should be the first ideal towards which the girl should build. In this age of unrest among women, when they are reaching out more than ever before away from the things of the home, it is well to plant in the young girl a realization that the things of the home are the great things, and that good motherhood is the first essential.

We need a larger view of social service. We need to realize that she who gives life to little children, who with infinite patience meets the daily needs of those little lives, cares for them, answers their thousand and one questions, goes with them year after year through the struggle towards maturity, and sends them out equipped for service, has given a greater gift to the world than she who has painted a great picture or written a great poem, or even swayed thousands by her eloquence.

That the world is opening for larger service for women is well, aye good, but these first great things must not be forgotten.

Social Instinct. The social instinct changes in the personal equation, and while the youth is still self-centered and egoistical, perhaps even more so than before, there enters into his apperception the ideas of social relations and social responsibility. In the youth, the interest in the game centers in a victory for the team and the glory which shall reflect upon the crew, college or fraternity. The wise recognition of this tendency, which has its finer expression in college athletics, has been one of the most helpful steps of the age.

This sense of social responsibility early develops into keen social interest, and things which before had no meaning for the child now become uppermost in his interests. He organizes parliaments, and debates with serene assurance the great questions of politics, religion and social life. He becomes keenly interested in the life of his fellows, keeping always, however, the egoistic point of view and yet developing high ideals and altruistic feelings.

Strong Friendships. This is the age of boon companions, of David and Jonathan friendships, of self-sacrifice for the sake of a comrade. With girls this is often carried to an extreme that is dangerous to future ideals, and care should be taken with both boys and girls that these friendships are wisely chosen, for they are apt to be lasting.

Patriotism. Patriotism becomes a vital interest to the youth. He longs for wars that he may enlist. He dreams of great deeds, of giving his life for his country.

Patriotism in the United States offers a most interesting study. Many of our people are living in the first generation in this country, but they go back to the fatherland for legends, standards and ideals. Many more of us in the third and fourth generations find that our family tree has been transplanted, but it is perhaps true that no nation in all history has ever been given more individual loyalty than our own. This has been tested in the last generation when the men who were willing to give their lives in response to President McKinley's call for troops were far greater than the need. Into this entered the element of the spirit of adventure, perhaps, without appreciation of the danger, but of many the utmost sacrifice was required. Few were found wanting in the test.

The idea of patriotism and love of country should be early instilled in the child. In the little folk this should be begun by the teaching of songs, patriotic plays and stories which have for their end high ideals. In the adolescent age this teaching should be more definite. In European countries every man must serve his time in the army or navy. It is a question, however, whether or not this enforced service especially teaches patriotism. Indeed, the love of country by the child seems to be elemental, and yet it probably would not develop strongly under modern conditions when international lines are less closely drawn and politics control in State affairs.

Here is a great responsibility which rests upon the public school teacher. In the schools are all the youthful representations of every nation in the world to be molded into American citizens, and the very life of the commonwealth depends upon that work being well done. The spirit of patriotism should be fostered in the teaching of American history —the story of the struggle for liberty and the "men who gave their lives that the nation might live." Biography should be emphasized, and anniversary days in memory of Washington, Lincoln, McKinley and Roosevelt should be kept, and children encouraged to form ideals based upon the lives of great Americans.

Every school should contain the pictures of some of these great Americans. These can be had for a trifle, and a teacher fails in the meeting of her responsibility both as teacher and citizen who does not make sure that the children have an opportunity to become familiar with the faces of those men who have made the nation great. Flag days should be kept and youth taught that the failure to salute the flag is both discourteous and disloyal.

"Lives there a man with soul so dead,
Who never to himself hath said,
This is *my own, my native land?*"

Happiness. Happiness is the natural state of life. Nearly all our struggle is for the purpose of gaining happiness. Enjoyment is no sin, and school should be a place of enjoyment. But the most thorough enjoyment is obtained through a wise and healthy use of all our powers. The enjoyment which the school gives should be of this sort.

"The duty of enjoyment should be taught as a question of morals. Deprivation of food and clothing weaken the body. Deprivation of pleasure tends to make the life hard, unimaginative and, hence, unsympathetic. Pleasures are largely the result of the play of the imagination and the kinder graces in general. More than half our pleasure comes from anticipation, and that is a manifestation of the constructive imagination. Those who have paid but little attention to judicious enjoyment are generally not pleasant to live with. Their narrowness and want of sympathy chill all with whom they come in contact."—*Halleck.*

Religious Life. The religious side of the adolescent should not be overlooked. Here the study of the great religions of the world is most interesting. In all but one we find the keenest development and social responsibility growing out of a realization of suffering, and the altruistic desire to relieve the poor manifesting itself in the adolescent period of the founder. The peculiar emotional sensitiveness of the child opens to him religious impressions, and those interested in his development should not allow the early adolescent years to pass without impressing upon the mind of the child those great truths upon which character, integrity and service for others are most surely builded.

The age of questioning and of doubt, which comes in the middle adolescent period, should not be entirely discouraged nor regarded as dangerous to the establishment of the truth. The child is seeking to build his own foundation He should be able to give a reason for the faith which is in him. The faith which is blind will go down before the storm and stress of life.

"Politeness is to do and say
The kindest thing in the kindest way."

Etiquette has been defined as "the Golden Rule combined with keen powers of observation," for the former leads one naturally to the right relations with others and the latter helps one to note the best modes of procedure.

The code of good manners is no arbitrary list of rules. It is the slow outgrowth of what has been found best during the many centuries that men have been learning to live in amity together. While the fundamental rule of kindliness never changes, there is a constant modification of customs to fit the changing conditions of life. When Chaucer wished to tell us how dainty and well-bred the Prioress of his Canterbury Tales was, he wrote:

> She let no morsel from her lippes falle,
> Nor wet her fingers in her sauce deepe.

Today, we do not use our fingers to pick morsels of meat from gravy, but in Chaucer's time forks had not come into use in England. While a gentleman still walks on the curb side when accompanying a lady, follows her into a building, and precedes her in stepping out of a car or from an automobile, he does so because he may help her in that way. But centuries ago, when these customs had their origin, the knight in armor established the habits in order to be in a position to protect his lady from an enemy. Similarly, we can trace the gentleman's custom of raising his hat to the days when two armored knights, meeting by chance, raised their visors to see whether it was friend or foe they faced.

Our modern girls are given far greater freedom than their grandmothers enjoyed. The entry of women into business life, their greater interest in athletics, and the growth of the co-educational school, all have fostered this change, and the rules of etiquette are being altered to

fit the new conditions. There is always danger that some foolish young people will change "liberty" to "license" and so bring into disrepute what might otherwise be a very good change in custom. But if they retain their own self-respect and their respect for others, they are not likely to go far wrong. Better a little too formal a manner than no manners at all! And deference to one's elders, though not so stiff and stilted in form as in grandmother's day, is still a mark of good breeding. On the whole, we may look upon a knowledge of the principal rules of etiquette as we look upon traffic rules—a means of guiding us safely and courteously among our fellow-men.

Greetings and Introductions

A gentleman always raises his hat when he meets a lady of his acquaintance, and, while he may merely nod in greeting a man of his own age, he raises his hat to one much older, and to a clergyman or other person of distinction. If he meets a man of his acquaintance who is accompanied by ladies, whether he knows the latter or not, he raises his hat. He lifts his hat to ladies of his own family with the same punctiliousness that he does to any others.

He raises his hat slightly when he stops to ask a stranger a question; if he steps back to make way for a lady in some crowded place, or if she draws aside to allow him to pass; if he picks up and returns some article dropped by a lady; when he offers a seat to a lady in a crowded vehicle, and again when she accepts with a "Thank you."

When a gentleman stops to speak to a lady on the street or in a public corridor, he removes his hat, shifting it to his left hand if he is going to shake hands. No gentleman ever smokes when speaking or walking with a lady on city streets, though this rule is not enforced in the country. Do not stand talking on the street for any length of time. One girl turns and walks with another; a gentleman asks permission to walk on with a lady and replaces his hat as they move on.

A gentleman removes his hat and keeps it off in the elevators of certain buildings, if ladies enter. The usual rule is that the hat is kept off in any elevator, if the woman is an acquaintance, but need not be removed on the entry of strangers in general office-building elevators, since these are as public as the streets. But in hotels, schools, women's shops, or office buildings where clubs and studios bring many women, the hat is removed.

A lady recognizes a greeting with a nod and smile. While it is the custom in Europe for the gentleman to bow first, in America he is supposed to wait for recognition from the lady. But the bow of friends is usually simultaneous. If a person does not care to recognize another it is easy enough to seem to be looking the other way and thus avoid the direct discourtesy of "cutting" a person. If a man bows to a lady and she is not certain she knows him, a bow without the accompanying smile is a permissible recognition of the salutation. She will not then run the risk of seeming rude to one whom she should perhaps have recognized.

When you are with a friend who stops a moment to speak to a passing acquaintance whom you do not know, stroll on a few steps and wait. Introductions under such circumstances are not necessary, but such a halt must not last more than a moment.

When to Shake Hands. When shaking hands, do so cordially, with a firm, quick hand-clasp. It is a woman's privilege to shake hands or not when greeting a man, but if he extends his hand first, she should accept the proffered hand promptly. Deference dictates that a young person, when meeting an older person, must wait for the latter to offer his hand. While two men usually shake hands upon being introduced, two women seldom do so, although it is quite correct if the older or more distinguished one makes the first move. In other words, it is rarely necessary to offer your hand if you prefer not to, but it is unforgivably rude to refuse a proffered hand.

Introductions. There are few exceptions to the rule that a man is to be introduced to a woman. A mother, teacher,

or older sister may say to a very distinguished elderly man, "Mr. Worthy, this is my daughter" (or "Alice West" or "my sister"). And to the President of the United States, a reigning monarch, a cardinal, or a bishop, a lady is always presented.

The wording of a formal introduction is, "Miss Blank, may I present Mr. Smith?" or "Miss Blank, do you know Mr. Smith?" The more usual form of introduction merely repeats the two names, "Mrs. Brown, Mr. White," the first being given with a slightly rising inflection as if the name were followed by the words, "May I introduce?" and the second name with a falling inflection, as if in answer.

When two persons of the same sex are introduced to each other, the younger or less eminent is presented to the other, and an unmarried woman is introduced to a married one unless the former is much older or more distinguished. A gentleman does not introduce another man to a lady unless he is quite sure she is willing to meet him and, if possible, he obtains her permission beforehand. He will find some means of avoiding an introduction if the man is not one whom he would care to have women of his acquaintance meet.

Reply to an Introduction. There is just one accepted phrase in acknowledging an introduction—"How do you do?"—said with a slight bow and smile, and it is the lady's privilege to open the conversation, the gentleman merely bowing in response to the introduction. If the person who introduces them knows some topic in which both are interested, a personal phrase added to the introduction helps to make an opening, as: "Miss Jones, Mr. Gates. You must have much in common, since you both write for your school papers."

Group Introductions. In a very small assemblage the hostess always introduces her guests to one another, but in large gatherings the guests either take care of themselves or are introduced to a few friends by the hostess, by some member of her family, or by those delegated to look after the guests. A newcomer may be introduced to one guest, who, on learning that he is a stranger, will introduce him to others. Do not stay too long with such a new-found acquaintance, but bow and wander on after a time, for it is not fair to make him responsible for entertaining you for any length of time. Since all guests are supposed to be friends of the hostess, they are presumed to be social equals, and it is quite correct to make some impersonal remark to a stranger sitting near. Do not force conversation, however, especially not on an older, distinguished person.

Self-Introductions. Any one assisting the hostess may introduce himself to a guest, look after his comfort, or introduce him to others. At a dinner, guests always speak to the persons seated on each side of them, whether they have been introduced or not. While it is not necessary to mention your name in a casual chat at a reception, at dinner you would say: "May I introduce myself? I am George Gode"; or a lady says: "I am Miss Troy." You may introduce yourself to a person if you have a close mutual friend. At a dance, a gentleman secures an introduction before asking a lady to dance.

Leave-takings. In taking leave of a new acquaintance, it is courteous to say "Good-bye, I am very glad to have met you." "Thank you," with a nod and smile, is the only needed answer, although persons who have found much in common may take leave of each other more cordially and informally. A younger person waits for the older one to make the motion to leave, or says he is sorry that he must go, if an engagement makes it necessary for him to make the first move. At a reception one is not supposed to stay more than a moment with the hostess and one then moves on down the line of those receiving. A courteous guest always speaks first to the hostess on entering a room, and at a school party, seeks the teachers who are chaperoning the group and says a word of greeting. In leaving a group of people a person says good-

bye, or merely bows to those looking in his direction, but does not break into conversation to make farewells.

In Public Places

The well-bred person is quiet in both dress and manner in public places; does not jostle others in order to get ahead; may walk rapidly but does not run and rush through halls and does not try to move ahead of his turn in a line that is being served or in marching into an assembly room.

People do not walk more than two abreast in a narrow pathway and they go single file when meeting others where there is little room to pass.

The rule of the road in America is to keep to the right, but in meeting a person who seems ignorant of the rule, give way rather than create an awkward situation.

If you accidentally brush against another person, it is courteous to say quietly, "I beg your pardon," and the other person bows slightly in acknowledgment. A gentleman would raise his hat as he spoke, or bowed.

A gentleman does not walk between two ladies but takes the outside of the walk. He allows a lady to precede him in going into a building and, unless he stands aside to hold the door open, precedes her in coming out. As soon as he has stepped out-of-doors he waits for her to reach his side. A century ago, when streets were badly paved and poorly lighted, such courtesies were, in reality, very necessary precautions, and even today they give a man opportunity to be of service in case of unexpected accident.

To an old lady or an invalid a man offers his arm; otherwise a lady does not take a gentleman's arm in the daytime, unless to cross a very crowded street. At night, however, a gentleman always offers his arm. Etiquette does not permit a lady to take a gentleman's arm, unless, perhaps, in a storm when he is holding an umbrella over her. A man does not hold a woman's parasol over her head, though he may hold an umbrella so that she may occupy herself with keeping "good" clothes from getting wet.

A man offers to carry any package a woman may have, but she avoids carrying large and clumsy bundles when possible.

When a gentleman accompanies a lady to any paid entertainment, such as a concert or to the theatre, he has his tickets or money ready so that there will be no uncomfortable delay at the door, and unless they must force a way through a crowd, he follows the lady down the aisle. If several couples go in together, the ladies may all go first or each gentleman may follow the lady he escorts. The latter course makes the seating easier, as the man always takes the seat nearer the aisle. If a chaperon or hostess is to meet the party, young people must appear on time, so that she is not kept waiting. Each of the group should take occasion to speak to the hostess during the evening and let her know that he appreciates her invitation, and a chaperon should be thanked for having given her time to such service. Young people may not realize it, but they win the respect of members of their own group, as well as that of their elders, when they show proper courtesy and deference to older people.

Talking, restless moving about, and rattling programs show a lack of courtesy toward those who wish to be allowed to enjoy the performance. A guest may applaud as acknowledgment of a good performance or as encouragement to a classmate in a school entertainment, but applause must not be unduly prolonged, nor do shouting and stamping come under the head of applause—except, perhaps, at a "rally." Do not attract undue attention by your voice, appearance, or conduct.

If a gentleman takes a lady to a restaurant, and a waiter shows the way to the table, the lady should pass ahead. If they find the table themselves, the gentleman should go first and draw out the lady's chair. In general, you should observe the same manners in a restaurant that mark your conduct in your own home or in the homes of your friends. Do not order the waiter about with a

superior air. To do so only shows ill-breeding. Do not lounge on the table. Remember that a toothpick is as much out of place in public as a toothbrush.

In the street-cars both boys and girls should rise for elderly persons, for those who seem ill, or for a woman with a small child. "Won't you take my seat?" said with a smile and little bow should be answered with a "Thank you." A girl should not refuse a seat offered by a boy or man, as such refusal acts as an unwarranted snub to an offered courtesy. Even if the man seems old or feeble, should he make the offer, to refuse implies that you think him too old or weak to stand, and that hurts worse than the standing. Here again, you see, it is doing what best pleases the other person that is the courteous, well-mannered act.

Chewing gum (which is an unrefined habit at best) is certainly out of place on the street car or in any public place. It is likewise poor form to eat candy or other food on a car or bus or on the street. Persons of refinement do not buy candy in the theatre for consumption during the play.

Demonstrations of affection (as well as of anger, it might be added) in public are not considered in good taste.

Friendships

Pick your friends carefully. You will, all through life, have many acquaintances with whom you will have little in common. But your real friends will be few, and they should be selected because of their true worth. As a rule, your friends will come mainly from the group to which your family belongs, because you will have similar interests and look upon life from much the same point of view. Do not make friends with persons whom you would not be willing to have your family know. A girl should never accept invitations from boys who are not known and accepted by her family. The right sort of boy will call on her at her home and not try to meet her only outside. He will expect to meet some older member of the family the first time he calls, at least, and he will go home by ten o'clock if he is calling on a school girl.

When a boy takes a girl home from a school party, she should not ask him to come into the house. He sees her to the door and is sure she is safely inside before he leaves. Usually a group goes together to an entertainment, but in many towns a boy and girl are permitted to go unchaperoned. We hear much talk that chaperons are no longer needed, but they are really a protection in emergency rather than the "spy" that some young folk consider them. In any event, when no chaperon is present, young people are honor-bound to behave in a manner that justifies their claims that they "do not need" a chaperon.

Conversation

A pleasantly modulated voice and a well-stocked mind are needed by the person who wishes to talk acceptably. But the person who wishes, in addition, to be popular, must be as good a listener as he is a talker. He will not monopolize conversation but will be ready to do his share and give others equal, or even greater, opportunity.

He will not contradict others but will listen deferentially to their opinions. If he is talking with strangers he usually allows their opinions to go unchallenged. If he is with a group of friends, or if the subject is one of real importance, he may state his ideas, giving them as the opinion of an individual and not as if they were the only possible, sensible solution.

While "Yes, ma'am" and "No, sir," are rarely used today, it is incorrect and frequently even discourteous to answer with a curt, "Yes," or "No." "Yes, Mrs. Jones," "Yes, Mother," or "No, I don't think so," take more time or effort and show an element of respect to the person you address. "Yep" and "Uh-huh" are neither English nor good manners. It is a sign of respect for yourself as well as for others to be quick to apologize for a discourtesy or wrong act. "I am sorry, I will be more careful next time," when one has done wrong or been reproved, brings a quick feeling of friendliness from

the one you have injured or annoyed.

While the average person is ready to do his share in a conversation, people are sometimes encountered who make no effort either, to talk or to appear interested in the talk of others. Such a person is a "wet-blanket" and deservedly unpopular. Any effort to draw him forth meets with a curt reply. He thinks the weather disagreeable, the school play "stupid." Asked if he likes a certain study he settles the matter with "yes" or "no." The only individual who is more objectionable is the one who asks personal questions that infringe on one's private or family affairs.

Certain topics are never discussed in "good society," except as intimate friends in the privacy of their homes may talk of them. Socially, we avoid all talk about operations and personal ills; personal defects of character (especially another person's); family or household troubles; matters suitable for one's own dressing room; personal costs and expenses; political and religious ideas that may be distasteful to others, and criticism of others —their manners, habits, homes, school work, etc.

Do not speak of a person by his first name unless you would speak *to* him that way, and never employ a nickname that is an implied criticism of a person's appearance or manner, for that is unkind as well as ill-bred. Do not speak of your husband or wife as Mr. Jones or Mrs. Brown, except to a servant. Say "my husband" or "my wife" to mere acquaintances and "John" or "Mary" to friends who are certain to know to whom the name applies.

While being too precise in our English gives our conversation a dull and stilted effect, it is better to err in that direction than to use too much slang and to carelessly misuse words. Why go to school and spend years learning grammar unless we make some use of our knowledge? Why, after learning that a singular verb is used with a singular noun, do we confuse "don't" and "doesn't"? Why do we say "those kind," thus using a plural to modify a singular form? And why do we slur our words and drop the final "g," until our speech loses its clearness and dignity?

One rule of good English is to use simple words and the shortest phrase rather than stereotyped expressions that were once known as "fine language." While it is imposible to list all words and phrases that are objectionable, the accompanying list will convey the idea:

Say:	Do not say:
Talk	*Converse*
I should like to buy	*I desire to purchase*
We go to bed; get up	*Retire; arise*
How do you do?	*Pleased to meet you; charmed*
A dance	*Ball (except a public affair)*
He received	*He was the recipient of*
Went to	*Attended*
I hope I am not in the way	*I hope I do not trespass*
May I?	*Will you accord me permission?*
Beautiful, or attractive, house	*Elegant, or gorgeous, house*
Telephone, photograph, automobile	*Phone, photo, auto*
Family	*Folks*
Think	*Reckon, guess, calculate*
Do you remember me?	*Don't you recall me?*
I will find out	*I will ascertain*
Let me help you	*Permit me to assist you*
Brilliant or clever	*Brainy*
Wash	*Perform ablutions*

Some of these words and phrases listed as incorrect are common in certain localities, but, as a rule, their use should be avoided.

The person who speaks well and entertainingly, uses simple English, does not talk too much or make an evident effort to be funny, and who does his share of listening, is certain to be popular.

Cards and Visits

When a girl is 16, she is old enough to put "Miss" on a visiting card. She never uses a nickname or diminutive on her card. A boy may omit the "Mr." before his name until he is through school, though the title is usually put on his card when he enters college. College degrees and "Professor" are not used on cards, but a judge, a military officer, and a doctor use the abbreviations of their titles, and a minister is "The Rev. Homer West."

Strictly speaking, it is not correct to use initials on a visiting card, but since names are often very long, it has become customary in such cases to use them. For instance, the card of Mr. James Henry Leamington Jones is often engraved Mr. James H. L. Jones, or Mr. J. H. Leamington Jones.

All visiting cards should be engraved on white unglazed bristol board. Shaded block is the most common type form today, though plain block and script are always good form. Fancy lettering, except Old English, should be avoided. A lady's card is usually from 2¾ to 3½ inches wide and from 2 to 2¾ inches high; a young girl's card is slightly smaller and almost square in shape; and a gentleman uses a narrow card, about 1⅜ by 3 inches. A young girl may have her name beneath her mother's on the latter's card during the first year she is in society, but she generally likes her individual card, also, to send with gifts.

A son, named for his father, puts "Jr." after his name. The "Jr." is usually dropped after the father's death, but a few men prefer keeping it as a matter of sentiment.

A widow continues to use her husband's name on her cards. A divorced woman, if her name was Miss Mary Brown, usually prefers to put Mrs. Brown Whiting on her card. In a city one's address should appear in the lower right-hand corner of the card, but in the country or in a small community this is not necessary.

Visits and the Visiting Card. When making an informal visit to a friend, one does not leave cards, but when making a formal call, it is customary in most places to do so. The card is either given to the maid who opens the door or is laid on a table in the hall. The latter is always done if the door is opened by a member of the family. A young girl making a visit in acknowledgment of some courtesy leaves her mother's card with her own. Sometimes a mother leaves her son's card as well as her husband's, but usually the young men do their own visiting.

When a young man first visits a young woman, it is correct for him to ask for the mother as well as for the daughter and to leave a card for each. When you are calling at a house where several ladies are receiving, leave a card for each, if there are three, but if there are more, three cards are considered as indicating a visit to all who receive. Never are more than three of any one person's cards left.

A married woman leaves one card of her own for the hostess and two of her husband's (one being for the husband of the hostess) but a lady never, under any circumstances, leaves her card for a gentleman. A daughter who is head of her father's house would leave her father's cards with her own when paying formal visits to mutual friends.

When visiting a guest in a house, one should inquire for the guest's hostess and leave a card for her, even though she is a stranger to the visitor. The hostess is also included in any invitation extended to her house-guest. When one does not intend to go to a tea or reception, one mails cards in time so that they will reach the hostess on the morning of the entertainment.

It is a lady's privilege to ask a gentle-

man to call, but she does not do so unless she thinks he wishes the invitation. He, on his part, may let it be understood that such an invitation would be welcome, or he may ask permission to call. He pays no visits uninvited, except that after accepting certain courtesies, such as invitations to dinner or a dance, especially if these be first invitations, a gentleman calls in acknowledgment.

The first call of one lady on another should always be returned within two weeks, even though one does not care to continue the acquaintance. The second call need not be returned unless one so desires. Twenty minutes to half an hour is the length of a formal call, and the hours are from three to five in the afternoon. Men usually have time to pay visits only in the evening.

Visits That Must Be Made. One makes a formal call within a week after taking a first meal at a lady's house. Even if you declined the invitation, courtesy demands a prompt call. A call is made to acknowledge the courtesy of any first entertainment; and to show sympathy for a friend who has lost some member of the family. Bridesmaids call on the bride's mother within a few days after the wedding; and a bride, settled in her home, expects all persons in the town where she has settled who attended the wedding and reception to call on her within a year. A call must be made before a first invitation is extended or a card must be left with the invitation. When a man's engagement is announced, the women in his family should always call on his fiancée at once.

Notes and Invitations

A formal invitation, whether it is written or engraved, is always worded in the third person, and the reply must be in the same form. The following invitation to a dance is a correct form for formal invitations to almost any type of entertainment except a reception or tea or a wedding. An invitation to a tea or reception reads, "will be at home," instead of "requests the pleasure of," even though the affair is to be held at a hotel, club, or other public place, and the name of the person invited is omitted.

Mr. and Mrs. Harlow Bradley

request the pleasure of

Miss Mary Westcott's

company at a small dance

on Thursday, January the thirteenth

at nine o'clock

Five Thousand Aldine Place

Such an invitation may be either engraved or written long-hand in ink, but never printed, and the lines are centered as above. On an engraved invitation the guest's name is written in, in long-hand. Monogrammed stationery is never used for engraved invitations. An acceptance to the above invitation is written as follows:

Miss Mary Westcott

accepts with pleasure

Mr. and Mrs. Harlow Bradley's

kind invitation for

Thursday, January the thirteenth

at nine o'clock

If Miss Westcott had declined, the second line above would have read, "regrets that she is unable to accept," and the last line would have been omitted, since the time would not matter under the circumstances.

Many school-day invitations are infor-

mal. The following illustrations are self-explanatory:

Dear Mary:

Mother is giving a small dance for me on Thursday evening, January the thirteenth, and I do so hope you can come. The hour is eight o'clock, because some of us have to go to school next day and Mother says we must not stay up too late.

Sincerely yours,

ELLEN BRADLEY.

(Answer)

Dear Ellen:

I shall be very glad to come to your dance Thursday, the thirteenth, at eight o'clock. It was so good of you to remember me.

Yours sincerely,

MARY WESTCOTT.

The three points to be brought out in any invitation are the type of entertainment, the time, and the place. Date and hour are spelled out, the figures being used only when the invitation is semi-formal or informal and written on the hostess' visiting card. The latter type of invitation is usually for cards, teas, or informal dances. The answer to the visiting card invitation is the formal one given above, written in the third person.

The form of an invitation shows whether an answer is expected. The words "A reply is requested," or the *R. s. v. p.* for the French equivalent: *Rêpondez s'il vous plait,* may be used when an answer is desired, except on an invitation to dinner, to which answer is sent promptly as a matter of course.

Invitations to a church wedding need no answer unless the invitation requests one, but invitations to a house wedding, a reception, or wedding breakfast require a prompt response. The forms for invitations should be obtained from a good stationer, but remember that at a wedding the bride's parents request "the honor of your presence," and at a wedding reception "the pleasure of your company" is asked. Wedding invitations and announcements are the only forms that are enclosed in two envelopes, the inner one, unsealed, being inscribed with the guest's name and not the address. "At Home" cards may be enclosed; and if the wedding is at a church there may be door cards and pew cards enclosed also.

TELEPHONED INVITATIONS. It is considered quite proper and is usually more convenient to extend informal invitations by telephone. This can be done in a few words, without extended conversation. For example:

Mrs. Brown:

"Is this Miss Winter (or Grace)? Will you come to dinner next Wednesday at seven o'clock?"

Miss Winter:

"Yes, indeed, I shall be glad to."

Or

"I'm sorry that I cannot. I am going to the theatre."

Do not, when giving an invitation by telephone, open the conversation by saying, "Have you an engagement for Wednesday?" This is likely to place the person whom you are inviting in an embarrassing position. If he says, "No," he cannot then decline your invitation, even though it may be one that he does not care to accept.

Many persons find it difficult to write a note or letter and put off writing until the task becomes even more difficult. If you have been a house guest in the home of a friend and wish to tell her or her mother what a happy time you have had, think what you would say if you were talking, and write it down with no idea of mailing those hastily scribbled lines. From them you can construct a little note that is frank and friendly. If you want to write to a friend who has suffered illness or sorrow, follow a similar course and make a rough draft of the things you would like to say. Then it will be easy enough to take out the best of these ideas

and make your note sound really sympathetic.

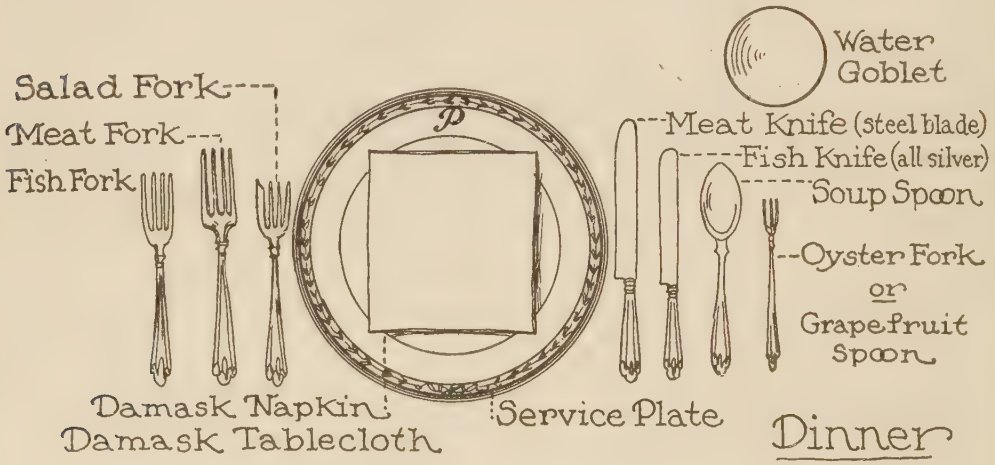
At the Table

We no longer decorate our tables with ribbons and twist napkins into fancy shapes with rolls concealed in their folds. Good, plain linens and well-polished silver, china, and glass are used. Either flowers or fruit form the central decoration.

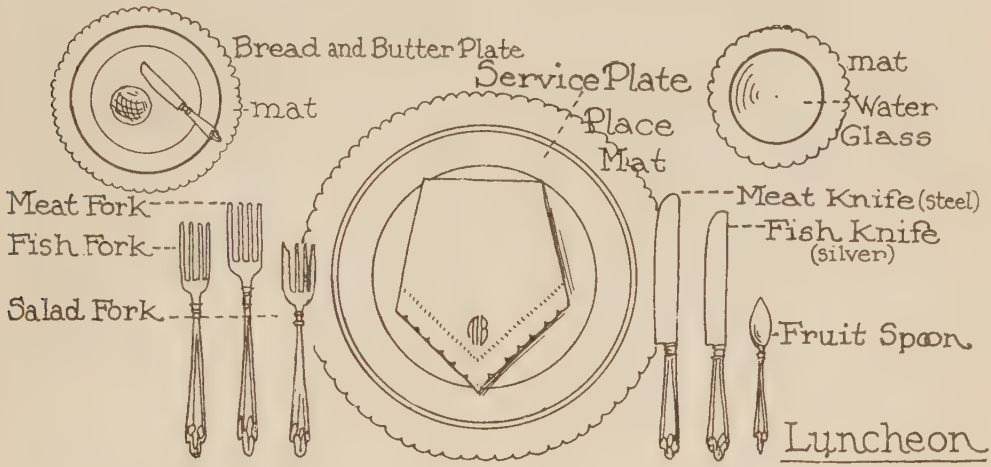
For formal dinners and for receptions and formal teas, candles are used. Four candlesticks with tall, and preferably unshaded, candles may be placed at the four corners, about midway between the center and the edge of the table, or candelabra, placed about halfway between the places of host and hostess and the centerpiece, may be used.

In setting the table, follow the charts here shown. The general rule is that the silver first to be used is placed farthest from the plate, so you use the knife and fork on the outside first. Many persons do not use the silver fish-knife, relying on a bit of bread to aid the fork in cutting fish. Never use a steel knife to cut fish. You will note that bread and butter plates are absent from the dinner table because bread or rolls, but no butter, are served at a formal dinner. At the informal home dinner butter may be served.

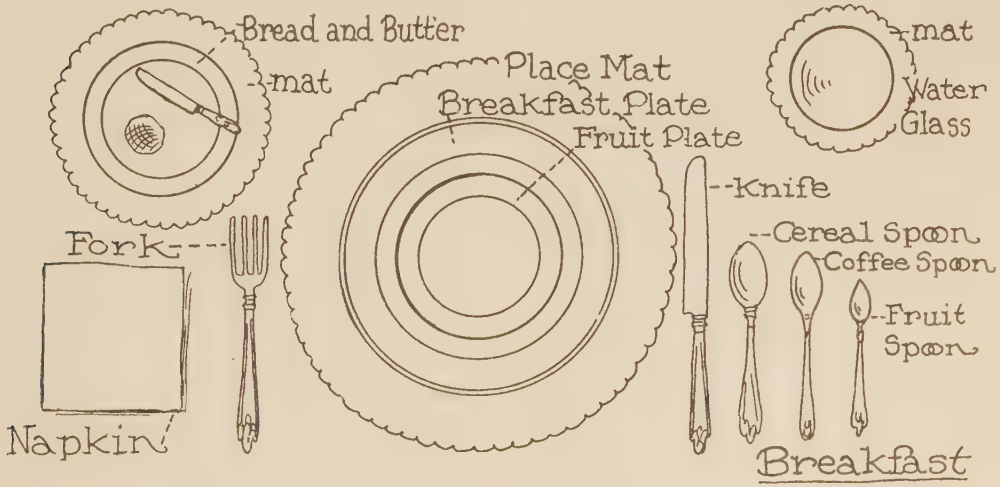
Extra silver for the dessert and coffee is brought when needed. At a formal dinner the Russian style of serving is generally followed. This means that nothing to eat is ever put on the table except dishes of fruit and candy. The meat is carved and served in the kitchen and vegetables are passed and returned to the side table. Only at breakfast or possibly at supper are dishes of food put on the table. For a home dinner the English method of serving at the table is preferred. A plate must remain at every place from the setting of the table until it is cleared for dessert. The original place or service plate is removed after the soup course, but it is immediately replaced by a hot plate containing the fish. Thus, the only plates that can possibly be brought in two at a time are those for the hors d'œuvres, soup, and dessert, and this is not usually done. Plates should be removed, as well as brought, one by one, and under no circumstances should soiled dishes be piled one on the other. All soiled dishes are removed from a place before a new course is served. Silver for the dessert is brought in on the dessert plate. Empty plates and those containing individual portions are placed and removed from the right, but when guests are to help themselves from dishes, these are presented at their left.



The host, escorting the lady who is the guest of honor, enters first. The honored lady is seated at his right. The gentleman who is honored enters last with



the hostess and is seated on her right. Occasionally the honored lady is served first, but usually the hostess is first served. In either case, service continues directly around, the ladies no longer being served before the gentlemen, since this makes service more difficult. When dinner is over, the hostess gives a quick glance round her table before rising to be sure all have finished. When she rises all the guests rise also. The gentlemen may merely draw back their chairs for the ladies and wait for them to leave the room, but usually at young people's dinners all go into the living-room together, the ladies passing through the doorway first.



Manners at the Table

Only the most serious accident is excuse for being late at a dinner. A guest comes five to ten minutes before the din-

ner hour stated and remains about a half-hour after a formal dinner, unless the hostess has provided entertainment and evidently expects guests to remain for the evening. The gentlemen usually seat their dinner partners. The napkin is half unfolded and laid in the lap. If ladies wear gloves, they remove them entirely at the table and do not roll them up on their arms. Host and hostess are responsible for keeping the conversation ball rolling, making remarks that will draw forth timid guests and bring them into the general conversation.

A spoon is always dipped away from you, not toward you. Food is taken from the side of the spoon; taking food from the tip of a spoon has an awkward appearance. Place a spoon in the saucer. Never leave it in a cup. Meat should be cut a mouthful at a time. The knife is held in the right hand with the handle under the palm and the forefinger is pressed along the back. The fork is held in the left hand with the tines down, and remains in the left hand when the meat is carried to the mouth. When no knife is being used the fork is held in the right hand either "prongs down" to impale meat or "prongs up" to lift vegetables. Break bread into small pieces before carrying it to the mouth; if it is to be buttered, spread one bit at a time just before eating it. When no butter is served the bread may be laid directly on the cloth, otherwise keep it on the bread-and-butter plate. When you have finished eating, or when passing your plate (at a family meal), place the knife and fork parallel to each other on the plate with handles to the right, the fork with tines up. The proper handling of knife and fork, taking small portions on the fork at a time, and eating silently and with lips closed when chewing are all signs of good manners at table.

Vegetables nowadays are served on the plate and not on separate dishes and are eaten with a fork. Peas, tomatoes, and similar vegetables are eaten with the fork and, while some people do take asparagus in the finger-tips, at a formal meal it is preferable to cut off the soft tip with the fork and so lift it to the lips. Artichokes are always eaten with the fingers. Corn on the cob is never served at a formal meal; at an informal one the corn is held in the finger-tips.

Never tip a plate. Never express preference regarding foods unless asked to do so, and then state quietly and definitely what you prefer. Usually a guest accepts whatever food is served and makes a pretense of eating a little of any food he does not care for. When servants pass a dish, the phrase "Thank you," without effort to help one's self is sufficient refusal. A guest never asks for more of anything except bread or water. A hostess never urges guests to have more, though she may offer it; in the latter case the guest may accept or refuse. At a formal dinner dishes are not passed a second time.

Keep your hands in your lap when not eating and remember that elbows have no place on the table; that when servants are present to pass food, guests are not expected to do so; that a guest does not continue eating after others have stopped; that you always talk to those on either side of you at a meal; that when you are ready to leave the table your napkin is laid unfolded on the table.

Host and hostess should see that guests are properly served, calling attention of the servants to empty glasses or missing silver, or, where no servants are present, supplying the wants themselves as quietly as possible. If an accident occurs, pass it over graciously, the chief thought being to make things as comfortable for the guests as possible. If a guest drops or breaks something, have the damage repaired quickly, but do not let the guest feel awkward.

The Hostess and the Guest

The successful hostess is the one who brings out the talents of others; who plans ahead so that her entertainments seem effortless; and who does not take the center of interest away from her guests. She gives a house guest time to herself each day, has her guest room attractive, and sees that the guest has closet-room and all needed conveniences.

The guest remembers that the hostess has household duties and does not demand too much attention. She does not leave her possessions lying about or take her hostess' books, borrow her clothing, or make plans without consulting her. Children should be made to understand that while we should be well-behaved at all times in the family circle, we try to show little extra courtesies to guests, and that the entire family is judged by the behavior of its young people. The coming of a guest is regarded as a courtesy to the entire family, so children are, in part, responsible for the comfort and entertainment of a stranger in the house. Learning to play the part of assistant host or hostess in one's youth is the foundation of being the successful host or hostess when one reaches more mature years.

Teas, Receptions, and Dances

Guests at teas, receptions, and dances may arrive at any time within the hours specified on the invitation. They take care of themselves, leave their wraps in cloak rooms, greet their hostess and those receiving with her, and chat with friends. Except at a dance, either men or women may go out alone to the room where refreshments are being served. Unless the hostess is disengaged, guests may leave a tea or reception without speaking to her again. If it is your first visit, however, it is far more courteous to wait until the hostess is free and then say good-bye, adding that you have had a pleasant time or that it was "so good" of her to ask you.

Young people nowadays often come to a dance in groups and stay together—a great help for the girl who would otherwise have to sit alone when not dancing. A young man returns a girl to her group or asks her where she would like to sit. He may offer to take her to one of the chaperons if her next partner has not appeared when it is time for him to seek his next partner. He thanks her for the dance or says he enjoyed it (a girl never thanks a man since she is supposed to have conferred the favor) or expresses regret if he must leave her before her next partner comes. A young woman of tact usually forestalls any embarrassment by suggesting that her partner seat her near friends or with a chaperon; the latter expects that young girls will come to her if they have no partners for a dance.

The group usually goes out to supper together and young men are supposed to see that all girls in their party are cared for. A hostess may ask some young man of her acquaintance to take out a girl who has few acquaintances, and he must do so even if he has to take her together with the lady of his choice.

In some communities young people are permitted to go home together in a group; in more formal circles, a maid is sent for young girls if no chaperon or member of their family is present, and one maid may take home several young girls who live near together.

Young men must remember that they are under obligation to their hostess, and it is an act of courtesy to dance during part of the evening if they accept an invitation to a dance. Staying out in the smoking-room for any length of time is a distinct discourtesy. Also, it is the lady's privilege to stop dancing; a gentleman asks to sit it out only if he does not dance at all or is ill. If he is forced to leave early, he lets his partners know and apologizes.

Engagements and Weddings

Announcement of an engagement should come from the family of the young woman, either verbally or in notes to close friends. The giving of engagement gifts is optional, but if a friend is invited to a "shower" a gift must be brought. A young man is "congratulated" on his engagement or marriage, but to the young woman one "wishes joy" or "happiness." She is never congratulated.

Sometimes guests are asked to the church and not to the house, or there may be a small wedding with many more invited to the reception afterward. Guests may send wedding gifts but are not under obligation to do so. In any case, gifts are sent to the bride, even though she is a stranger to friends of the bridegroom.

Guests must be on time at the ceremony

and take their places quietly without stopping to chat with friends. Guests who are in mourning either lay aside deep mourning for the day or slip quietly into a gallery seat or into the back of the church, so that they will not mar the cheerfulness of the occasion. A young girl who is asked to be a bridesmaid may lay aside mourning for the day, as a bridesmaid's costume is regarded as a uniform and she is justified in wearing it for a few hours and then going back to her somber black.

Persons who were not invited to the wedding ceremony or reception, but who receive announcements of a wedding, may send gifts if they choose, but need not do so. The announcement means that the person who receives it remains on the visiting list of the persons who send it, unless as sometimes happens, it is sent to a purely business friend with whom one never has been on social calling terms.

Good Taste in Dress

It has been said that we are judged first on our appearance, second on our speech and manners, and last of all on our character. It, therefore, behooves us to make our appearance as attractive and indicative of what we really are, as possible.

Some persons follow the dictates of fashion like sheep, whether or not the fashionable thing is becoming to them. Others are skilful enough to adapt styles to their own personalities. In general one should avoid clothes that are out of proportion to one's income or surroundings. Thus the woman who has a limousine and a chauffeur may wear much more elaborate dress than one who must either use public conveyances or walk.

Nothing so quickly marks the "person who doesn't know" as inappropriate choice of clothes. When in doubt as to what to wear, always wear the plainer dress. The fault of bad taste usually lies in overdressing. If short skirts are being worn, do not wear yours two inches shorter than anyone else's. If they are long, don't have them dragging after you on the street. One's street dress, should be simple, and high-heeled slippers should be avoided. Excessive use of cosmetics is in poor taste and detracts from a person's appearance. Upon leaving the house one should be fully dressed, so that there will be no necessity for adjusting one's dress, powdering one's nose, manicuring one's nails, or arranging one's hair in public places.

The well-dressed man too, should avoid the extreme in the cut of his suits, and the color of his ties, shirts, and socks. He should try to achieve harmony, so that there is no clash of colors.

For formal wear a man should have formal evening clothes, but if he cannot afford both a dress suit and a tuxedo or dinner coat, he should buy the latter for it can be worn on many more occasions, while the full dress suit is only essential at formal evening functions and at evening weddings. With a tuxedo, one may wear either a black or white waistcoat, but with the "swallow-tailed" coat, only a white one is permissible. The tie is black for the former, and white lawn for the latter. The opera hat is not essential with the tuxedo, although it is preferable for town wear.

Ladies wear informal dinner dress—merely a modified formal dress, with short sleeves, or sleeveless—to the theatre, the restaurant (of high class), concert, and opera. Formal dinner dress which is merely low, or half-low, evening dress is worn to formal dinners. The evening dress is worn to dances and formal evening affairs, and differs from the formal dinner gown in that some allowance is made for freedom of movement in dancing.

Both men and women should be careful not to wear too much jewelry, particularly if they cannot afford the genuine. Women should wear tiaras and elaborate head dresses only to formal balls and to the opera.

Hats should be worn with street clothes and should not be removed in restaurants. In some cities low-necked dresses, and no hats are worn in certain restaurants. Just as day dresses are never worn without hats, so, evening dresses

are never worn with them. It is considerate and proper, of course, to remove one's hat at the theatre or any other public entertainment where hats may interfere with someone's view of the stage. Hats are worn to all teas, whether formal or informal, but may be removed only on the latter occasion.

Sport shoes should, of course, be worn with sport clothes, and simple walking shoes that harmonize with the costume are correct for street wear. The person who cannot afford shoes to match each dress, should buy conservative, low-heeled shoes for ordinary use, and a pair of more formal slippers in black for wear with afternoon dresses.

Traveling

The general rule to avoid doing anything that will give offense to others applies, of course, to traveling, and under no other circumstances do the qualities of tact and adaptability stand out more clearly than in the traveler who must adapt himself to changing conditions and to the various points of view of the people with whom he comes in contact. We all envy the ease and poise of the experienced traveler. A few suggestions as to some of the little things that are likely to puzzle one may not prove amiss.

Registering in a Hotel. A gentleman writes in the hotel register:

"James Brown, Chicago."

He never uses the prefix "Mr." or "Hon." or any other title.

If his wife is with him, he may, however, write:

"Mr. and Mrs. James Brown, Chicago." Or he may register as follows:

James Brown Chicago
Mrs. Brown "

If children are with them, their names should be registered, too, unless they are very young, when it is proper to write:

Mr. and Mrs. James Brown, 2 children.

Ladies Traveling Alone. It was once considered improper for a young woman to travel alone. That time is now past, and a woman may safely travel from coast to coast in America and even in foreign lands alone. She must be especially careful, however, to be quiet and dignified in appearance and in manner. She should be very careful about making the acquaintance of strangers, particularly men. If a young man should show her a courtesy, such as opening a window or helping her to place her baggage, she should thank him, but should not encourage him to engage in a long conversation. If she is of mature years and good judgment, and he is obviously a man of refinement, there is no harm in exchanging a few words on impersonal subjects.

Tipping. Ladies traveling alone will find it to their advantage to tip rather generously. The tipping system is a deplorable one, to say the least, but it is so thoroughly established that to refuse to submit to it will entail considerable discomfort to the traveler. Moreover, since the system is in force, in most hotels waiters and other attendants depend upon it for part of their livelihood, and from this point of view these fees are really due them. Custom has established 10 per cent of the amount of the bill as the rule in tipping. But if the bill be a small one, the tip should be larger in proportion. Thus if one were alone in an expensive hotel and ordered a meal costing only one dollar, while holding a table that might be occupied by others dining much more lavishly, one could hardly expect the waiter to be satisfied with a fee of less than 25 cents.

Business Manners. In a general way the principle underlying relations among business people is the same that underlies courteous relations in the home and at school—the desire to make intercourse between persons who of necessity come into contact with each other easy and pleasant.

Business relations are necessarily more or less formal. But this does not mean that one should maintain a cold, aloof attitude. Upon entering one's place of business, it is the courteous thing to greet those who are already there. One's manner toward superiors should be respectful, pleasant, and attentive, yet at the same time impersonal. Discourtesy to sales persons in stores and shops or to any

person who is serving one is a sign of ill-breeding.

Always be businesslike in using the telephone. In answering a telephone in an office, make an effort to secure certain routine information. Say, "This is Mr. Brown's office. Who wishes to speak to him, please?" If Mr. Brown is not in, ask if there is any message. If you do not understand the person who is speaking, do not say "Huh?" or "What?" "I beg your pardon" will bring a repetition without ill-feeling.

Public telephones should not be monopolized by one person. One's conversation should be limited, for there are usually others waiting for their turn.

Little Matters That Matter Much

When in doubt, do the kindly thing and you will not be far wrong. Quiet manners, well-modulated voice, appropriate and not showy dress, deference to one's elders and to business and social superiors —all these help in the sum total of being a lady or a gentleman. And do not think you can "put on good manners" among strangers and neglect them at home. It is the person who does the courteous thing instinctively, from long practice and daily habit, who impresses people as "well bred."

Neglecting to rise when your mother enters the room; gulping food; answering with "yep" and "I dunno" to those at home; carelessnes in personal appearance when not "on parade" are sins that will find you out when you most want to impress people with your knowledge of correct behavior. Behave at home, in school, and at work as you would abroad, if you want to be really well-bred.

Good manners are an asset in business life as well as in social life. The men and women who rise to high positions usually are those who make a good impression by their quiet efficiency, good manners, and ability to get along well with others and refrain from gossip. The gum-chewing, loud-talking, overdressed individual may push ahead at first, but you will find that the person of better manners is, in the last analysis, the one who attains the better position, both socially and in the business world. And he is always welcome among persons of refinement who would not recognize his companion of the unpleasantly aggressive type.

FORMS OF GOVERNMENT

There are three principal forms of government in the world, and two or three modifications of these. They may be explained as follows:

1. **Absolute Monarchy.** A country governed by a ruler whose will is the supreme law of the land, who is not dependent upon the people for his position but secures it by inheritance through his family, and who is responsible to no one for his official acts, is an example of an absolute monarchy. Such governments are becoming less common in the world; with their advance in civilization, people become self-governing.

2. **Limited Monarchy.** A country governed by a king or queen, but whose powers and duties are expressly defined by the will of the people, is a limited monarchy. The higher the intelligence of the people in such a country the less liberty of action is given the ruler. In England the ruler is literally a figure head and never interferes with the law-making power. They people rule through representatives they choose. One of the results of the European War was the overthrow of three autocratic governments,—Russia, Germany, Austria-Hungary.

3. **Republic.** If a country is wholly governed by the people residing in it, and if every official who exercises control is given his authority by appointment at the hands of the people, the government thus organized and conducted is a republic. It is sometimes called a representative democracy. The most notable example of such a government the world has ever seen is the United States. Other successful republics are France and Switzerland, in Europe, and the South American countries.

4. **Pure Democracy.** If a self-governing people live in a country so small that it is an easy matter for all of them to meet in one place to make their laws, such a country is a pure democracy. There is only one such government in the world, the Republic of Andorra, 60 square miles, in the mountain region between France and Spain. All the voters can meet in the public square of the capital city to make their laws and appoint their officials.

THE UNITED STATES GOVERNMENT

The Government of the United States cannot be a pure democracy; the country has too vast an area to permit all the people to come together to make their laws. The nearest approach to this is for the people in each section to name some person or persons to represent them and act for them in the making of laws and in exercising control for the benefit of all the people. Thus we have a representative government—a representative democracy, or republic.

Divisions of Government. In every enlightened country control begins at home with all its citizens or subjects, and this is particularly true in the United States. Local affairs must be administered locally; people at a distance have no interest in them. For governmental purposes the smallest political unit is the school district, seldom more than two miles square. The *school district* is an example of a pure democracy. Once each year all the people within it meet together to choose school officers, and by vote declare what shall be done for the district's educational interests for the next year.

Next above the school district is the township government. The *township* is a political unit and also a pure democracy. The annual "town meeting" is participated in by all the voters, and they formulate policies for a year in advance, but have no power to legislate in school affairs, for the little school districts are real governments of their own. The township can only regulate general township matters.

Next above the township is the *county* government, and the size of this political unit and the density of population require something more complicated than the democratic meetings of the township and school district. The people of the county therefore stay at home as a body, but they choose a few from their ranks to go to the county seat and legislate for them. This picked body of men do what is best for the people they represent, but keep entirely away from such purely local matters as the townships and school districts control.

In the ascending scale of government the *state* is above the county, and the United States, or *Federal Government,* is but a union of the 48 states. Each of the latter has its responsibility for the welfare of its citizens, and above all, the one central government exercises control of such character as relates to the general welfare of the country.

A Vast Governmental Machine. The very many interests of the people of the United States, it has been noted, require for their welfare and happiness governments within governments. The Federal Government is prohibited from encroaching upon the right of the states to regulate whatever relates solely to their own internal affairs; a state cannot take away from a county the control of those matters within its territory which affect no other county; a county government is bound to respect the township in its right to absolute control of everything whose influence does not reach beyond its boundaries, and the school district regulates its educational affairs independently of what may be done or thought of in a neighboring district.

The Beginning of the United States Government. Before state governments could be organized and put in running order, the National Government had to be established. After the Revolutionary War, each state was an independent sovereignty in almost every respect. A so-called constitution bound the states in a loose formation and this document was called the Articles of Confederation. It was apparent that the Articles must receive extensive amendment to adapt them to the new conditions resulting from war. Accordingly a convention met in Philadelphia, in May, 1787, by authority of the Congress; 55 delegates were present. The sessions extended until the middle of September. Within the period of four months, the Constitution of the United States was formed, and so great a man as Gladstone said

that it surpassed any work of man in the world's history that had ever been accomplished in so short a time.

The United States Constitution. The forefathers builded well. They organized under the Constitution a government of three departments; these were called the legislative, or lawmaking, department, the executive, or law-enforcing, department, and the judicial, or law-interpreting, department. The legislative branch was named the Congress of the United States; the executive branch was given for its head the president of the United States, and the judicial department was organized as a Supreme Court, with the provision that Congress might provide from time to time for inferior courts, as necessities might require.

It was provided that neither of the first two departments could be independent of the other; one should always act as a check upon the other. No bill passed by Congress could become a law of the land until it had received the president's signature, except that in case the president refused his approval, Congress might by a vote of two-thirds of the entire membership of each house make the bill a law without the president's signature to it.

The president is the chief executive officer, but he is held in check by the legislative department and cannot exceed the authority vested in him by the laws of the land, as made by the Congress. Confronting the legislative and executive authorities is the Supreme Court, composed of the nation's most able lawyers, who are empowered to declare what laws of Congress are in accordance with the Constitution and therefore valid, and what laws in spirit are opposed to the provisions of the Constitution, and therefore not valid.

A discussion of the three departments of government in considerable detail will be of value.

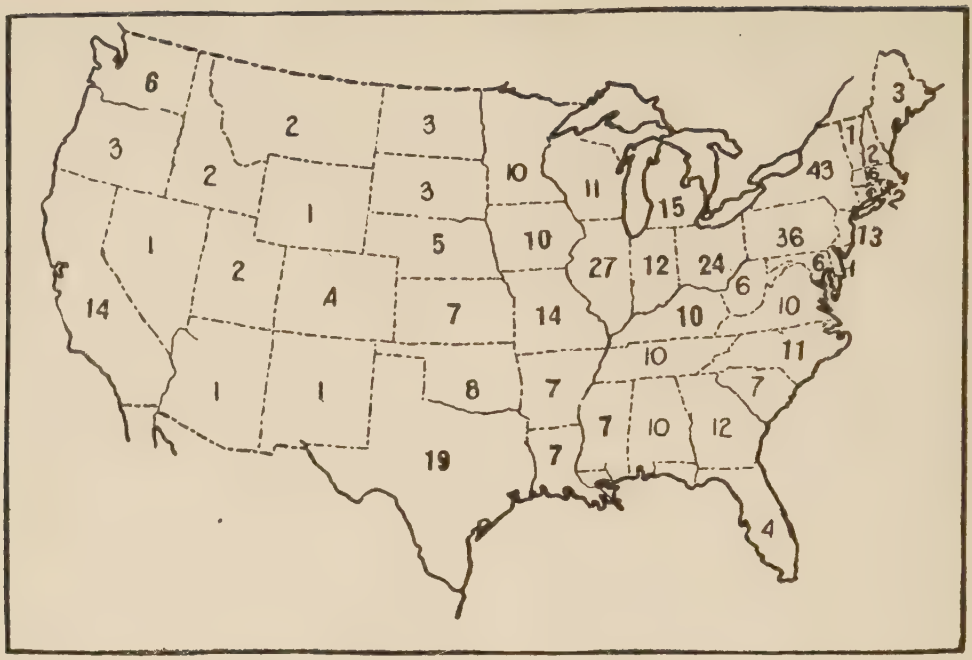
THE LEGISLATIVE DEPARTMENT

The legislative branch of the National Government is the lawmaking branch. The Constitution is the supreme law of the land, and no law can be passed and put into effect which in any way is contrary to the provisions of the Constitution.

There are two branches of the legislative department. The more numerous branch—that is, the one with the greatest number of members—is the House of Representatives.

The House of Representatives. Congress itself decides how many members the House shall contain. Having determined this, the whole number is apportioned according to population among the various states. The number can be changed every ten years, after each national census is taken. A year after the census of 1910, Congress declared that the House should contain for the next ten years 433 members. The almost immediate admission of Arizona and New Mexico added one more member for each of those states, increasing the total House membership to 435. The number for each state was found in the following manner: The population of the United States was divided by the number of members the House was to contain; the quotient was found to be a little more than 190,000. This number was called the unit of representation; that is, one representative should be sent to Congress for each group of 190,000 of the population of the country. Then the population of each state was divided by this unit of representation and the quotient gave the number of representatives each state could elect as members of the Congress. After the 1920 census the total number (435) was not changed but a reapportionment was made among the states in accordance with the new population figures. The map on the following page shows the present number of representatives from each state.

Each state divides its territory into what is called congressional districts, and there are as many districts in the state as the number of representatives the state may send to Congress. All the voters in the congressional district vote directly for their members of Congress.



MAP SHOWING THE NUMBER OF REPRESENTATIVES IN CONGRESS FROM EACH STATE ACCORDING TO THE APPORTIONMENT OF 1920

The term of a representative is two years, and the salary is $7500 per annum.

The Senate. The Constitution decreed that the coordinate branch of Congress should be called the Senate; that it should be a smaller branch than the House; and that to secure its members the utmost freedom from local state influences and make it in the highest sense a strong deliberative body, its members should not be elected directly by the people, but should be chosen by the state Legislatures and the term of each senator should be six years. Until 1913 such was the policy of the government, but the experience of more than a century proved that a decided change in the manner of electing senators was essential, and an amendment to the Constitution, adopted in the year named, provided that the United States senators should thereafter be elected by all the people of each state in the same manner that was provided for the election of members of the House of Representatives.

The causes leading to this radical change are not hard to find. Many senators secured their election by means which did not argue well for the honesty of their selection, and moreover, having been chosen by the comparatively few members of a state Legislature and not owing their choice directly to the whole body of people, often were inclined to disregard the plain wishes of the people of their states, in their official acts. The number of senators, two from each state, remains as provided in the Constitution. We have witnessed the last election in the United States of a senator through the medium of a state Legislature.

Powers of Congress. The two houses of Congress in all their lawmaking duties are dependent one upon the other. A bill to become a law must be passed in exactly the same form by both the Senate and the House of Represent-

atives before it is sent to the president for his signature. The manner in which a bill becomes a law is as follows:

Lawmaking. A bill may originate in either house, unless it is one which provides for the raising of revenue to support the government. Such a bill must originate in the House of Representatives, by constitutional provision. This was thought to be the part of wisdom by the framers of the Constitution, for the members of the House, coming fresh from the people every two years, might be expected to know more clearly than the Senate the exact and immediate needs of the people.

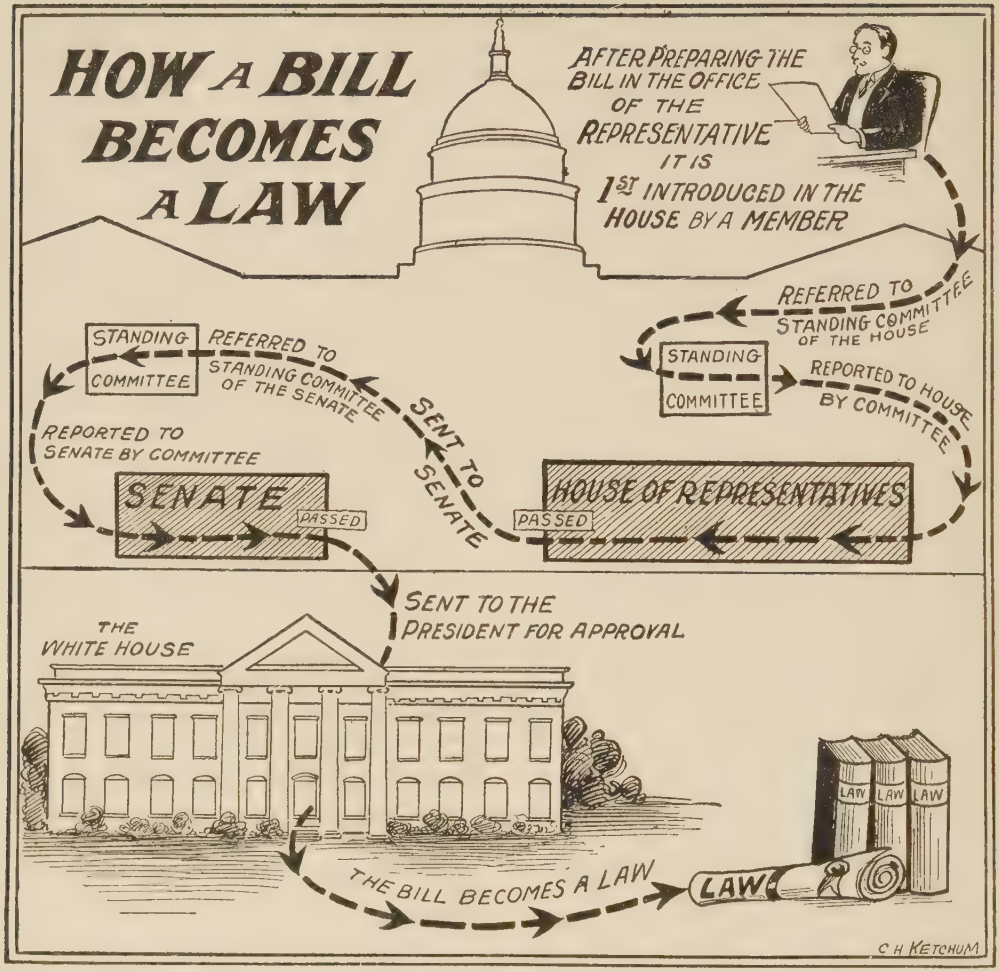
We will suppose that a bill of some general character originates in the House of Representatives. Some member introduces it and it is sent to a select number of members called a standing committee, of which there are more than 50 in the House, whose duty it is to receive bills relating to its special sphere and consider them, and later report them to the House with recommendations as to the desirability of passage. Legislation by committees in so large a body of men is essential to the expedition of business, for the House as a whole could never consider even a small fraction of the thousands of bills introduced.

When the bill above referred to has been carefully considered by the committee to which it was given, the committee reports to the House the merits of the proposed legislation, and then the bill is read in open session on three different dates. The first time it is read by its title only, and a date is fixed upon which a vote shall be taken. A majority of the members present, provided that number be more than half of the total membership, is required to pass a bill. No vote can be taken on any proposed law, unless at least half of the membership of the House, called a quorum, is present.

After the bill has passed the House, it is sent to the Senate, and there the same process is repeated. It is referred to a Senate committee, in due time is reported to the whole body of senators, read in open session three times, the first time by its title only, and eventually is brought to a vote. If it passes, it is then sent to the president of the United States for his approval. In case the Senate does not agree with all the provisions of the House bill, it may amend it, in which event it must be returned to the House and in its form as passed by the Senate must be again voted on in the House. The House may accept the Senate form of the bill and pass it in that form and then send it to the president; but it is within the rights of the House again to amend it, in which case it must go back to the Senate for concurrence. If the two houses, thus working separately, cannot agree upon the contents of the bill, then a joint committee of the two houses is appointed to put it into such shape that it may receive the majority vote of both houses. Such a committee is a conference committee.

Even after a bill has thus been considered several times and frequently voted upon until it is in acceptable form, it may yet be disapproved by the president. In case he will not sign the bill as passed by the Congress, he returns it with his disapproval to the house in which it had its origin, and states in a letter his reasons for withholding his signature. The temper of the Congress may be such that the passage of the bill is demanded regardless of the president's views; so if two-thirds of the members of each house —not two-thirds of those present—vote once more in favor of the bill, it becomes an act of Congress, regardless of the president's wishes. We have followed the course of a bill through Congress that was originally introduced into the House of Representatives. The same procedure is followed in the opposite direction if it is introduced first into the Senate by a member of that body.

Other Powers. The Congress has not absolute power to legislate in any direction it pleases. It is limited by express provisions in the Constitution. The directions in which it has free exercise of


HOW A BILL BECOMES A LAW
AFTER PREPARING THE BILL IN THE OFFICE OF THE REPRESENTATIVE IT IS 1ST INTRODUCED IN THE HOUSE BY A MEMBER
REFERRED TO STANDING COMMITTEE OF THE HOUSE
STANDING COMMITTEE
REPORTED TO HOUSE BY COMMITTEE
HOUSE OF REPRESENTATIVES
PASSED
SENT TO SENATE
REFERRED TO STANDING COMMITTEE OF THE SENATE
STANDING COMMITTEE
REPORTED TO SENATE BY COMMITTEE
SENATE
PASSED
SENT TO THE PRESIDENT FOR APPROVAL
THE WHITE HOUSE
LAW
LAW
LAW
THE BILL BECOMES A LAW
LAW
C H KETCHUM

The usual routine in enacting a bill is shown in the graphic. We should add that unless a bill concerns revenue legislation it may originate in the senate instead of the house but the course then taken is the same, except that the Senate and its committee consider the bill first. In either case the house receiving the bill may pass it in an amended form. The amended bill is then returned to the originating house for further consideration.

In case the two houses can not agree, a conference committee of members of both houses is appointed to consider the bills and if possible effect a compromise, in which case it is necessary for both houses to pass the compromise bill, though either is at liberty to reject it. They must however come to an agreement and pass an identical bill for the president's consideration.

If the president vetoes the bill it is necessary to pass it over his veto; but this requires a two-thirds vote in both houses, it then becomes a law without his signature.

power are named in Section Eight of Article One of the Constitution, in brief, as follows: It may—

1. Lay and collect taxes.
2. Borrow money on the guarantee of the United States to repay it.
3. Regulate commerce.
4. Establish rules for naturalization.
5. Establish uniform laws of bankruptcy.
6. Coin money and declare what its value shall be.
7. Fix the standard of weights and measures.
8. Provide for punishment of counterfeiting.
9. Establish post offices.
10. Grant patents and copyrights.
11. Establish United States courts inferior to the Supreme Court.
12. Declare war.
13. Exercise control over territory of the country not a part of any state.

Prohibitions. Besides the above direct powers, there are certain things that the Congress is prohibited from doing. Some of the words in the paragraphs below may be unfamiliar to the reader, but explanation will be found somewhere in this set of books in articles in regular alphabetical order. Congress cannot:

1. Suspend the right of habeas corpus.
2. Pass a bill of attainder.
3. Pass an *ex post facto* law.
4. Lay direct taxes, except in proportion to the census.
5. Assess taxes on exports from a state.
6. Draw money from the treasury unless legal appropriation has been made.
7. Grant titles of nobility.
8. Restrict freedom of speech or freedom of the press.
9. Establish a national religion or prohibit one from worshiping as he pleases.
10. Deny the right of assemblage to petition the government.
11. Repudiate debts.

THE EXECUTIVE DEPARTMENT

The Constitution declares that the executive authority of the United States shall be vested in a president and a vice-president, who shall hold office for the term of four years. In our everyday construction of this division of government, we assume it to be a one-man department and that the president is the only one with authority. Indeed, this is to a very great extent true, for as long as the president is able to perform the duties of his office, the vice-president is very much in the background. His constitutional duty usually is limited to one task, that of acting as presiding officer of the Senate. There he has no vote, not being a member of that body, so he is largely a figurehead. But should the president die, resign or be dismissed on impeachment charges, then the vice-president becomes the commanding figure in the nation. He assumes the presidency and takes upon himself its vast responsibilities. Too frequently the people of the United States do not realize the place of potential power occupied by the vice-president and they nominate and elect men to the office whom it would be a calamity later to raise to the dignity of the presidential office. In his capacity of president of the Senate, the vice-president receives a salary of $12,000 per year.

The President. No man can be president of the United States who is not a citizen of the country from birth. No other position in the Federal Government demands such a qualification. He must also be 35 years of age, and no other officer needs to have reached that age. Further, no man can leave the country on private business in foreign parts and take up his residence there, then return home and aspire to the presidency until he has lived within the country 14 years after his residence abroad. The salary of the president is $75,000 per year, besides which Congress appropriates a sum exceeding the salary for expenses incident to the proper care of the presidential establishment, and the further sum of $25,000 per year for traveling expenses for the chief executive. There is no provision in the Constitution which limits the president to

one term in office; so far as the legal aspect of the case is concerned, he may secure reelections, if possible, although precedent has established two terms as the limit for any one man.

Presidential Elections. The makers of the Constitution surrounded the office of president with numerous safeguards in order that selection of an unworthy man would not be likely to occur. The qualifications of the president have been named above, the manner of his election shows the infinite care with which our forefathers surrounded his choice. The president is the only elective officer of the government who is not selected by the direct vote of the people. Today we wonder that such a provision was insisted upon in the Constitutional Convention. It is an interesting bit of history which the student should read some time from original sources.

It must be stated that the majority of members of the Constitutional Convention distrusted the people and doubted their ability wisely to choose so important an official. Alexander Hamilton said that the masses of the people were fools. He actually said, "The people, sir, the people is a great beast!" Placing a charitable construction on his opinion, we may believe that he meant to call attention to the fact that the average inhabitant of the United States in 1787 had had only 81 days' instruction in school. Surely the scale of intelligence was low.

The manner of the choice of the president was decided as follows: Selection was not given directly into the hands of the people, but the country was to be a republic and in some way the people must rule. Therefore, it was decided that the people themselves in every state should choose from among their leading men as many as equaled the state's membership in Congress, both in the Senate and House of Representatives. These men were to be called the electors of the president and vice-president, and upon them was to fall the duty of electing our chief executive. This arrangement has been followed through all the years, and in November of every fourth year, all the voters of all the states vote by ballot for these electors. Republican voters vote for Republican electors; Democratic voters vote for Democratic electors; and Progressive voters for Progressive electors. If the Republican electors in any state receive more votes than their opponents, then we say that state has gone Republican and the Republican electors are therefore commissioned in that state to the task of casting their votes for whomsoever they please for president and vice-president. The only exception to the freest exercise of their choice is that the electors in any state cannot vote for men for the office of president and vice-president both of whom are residents of the same state as themselves.

For about 50 years, the great political parties of the country in national conventions have nominated candidates for president and vice-president and the electors have without exception voted for the men they nominated. They always have been expected to do this and no elector has ever disobeyed the wishes of his party, as expressed in the national convention. However, the fact remains that under the Constitution the electors are free agents and no law binds them to vote for certain men; they have the legal right to choose whom they may desire.

The Electoral College. At the present time there are in Congress 435 representatives and 96 senators, a total congressional membership of 531. Therefore, in the electoral college there are 531 votes, for each state chooses as many electors as its total representation in Congress. On the 2nd Monday in January, following the November quadrennial choice of electors, these electors meet in their respective state capitals and vote for president and vice-president, and at once send official reports of their vote to the secretary of state of the United States. On the 2nd Wednesday in February, the Senate and House of

Representatives in Washington meet together as one body and count the electoral votes, and until that formality is complied with, there has not been an election of president and vice-president, although usually the final results are known the day after the choice of electors in November. The law provides that the successful candidate must receive a majority of all the electoral votes cast; at the present time this would mean that he must receive at least 266 votes. If no man receives this number, there is no legal choice by the electoral college; in this event the House of Representatives is authorized by law to elect a president, and in voting on this question, each state has one vote. That is to say, if any state has 12 representatives, the man favored for president by the majority of these men receives the vote of that state. In like manner, the choice of vice-president is left to the Senate. Such a condition has never yet occurred. After the election of the president about two months intervene before he assumes the duties of his position. He takes the oath of office on the 4th of March, at noon, and at the same time the vice-president is sworn into office as president of the Senate. The oath of office is administered usually by the chief justice of the United States before a vast concourse of people on a platform in front of the United States Capitol.

The President's Cabinet. The first president of the United States was authorized by Congress to appoint four heads of executive departments, for naturally the president himself could not give personal attention to all executive details. These four men were placed at the head of the department of state, the treasury department, the war department and the legal department, whose head was called the attorney-general. With the growth of the country, other executive heads have been added, until now the president's cabinet includes the secretary of state, the secretary of the treasury, the secretary of war, the attorney-general, postmaster-general, secretary of the navy, secretary of the interior, secretary of agriculture, secretary of commerce and secretary of labor. The two latter departments are recent additions, the former having been organized in 1903, the latter in 1913.

The members of the president's cabinet are intrusted with the details relating to their various departments and are the trusted advisers of the chief executive. Their salary is $12,000 per year.

Powers of the President. The president is sworn to execute faithfully all the laws of the United States. He is commander-in-chief of the army and navy; he appoints with the consent of the Senate, ambassadors and all other representatives of the United States in foreign countries, justices of the Supreme Court and such officials within the United States as are not elected by the people.

Our Changing Government. For some years the people have been demanding that control of government affairs shall come more directly into their hands. One long forward step in this direction was the change in the method of electing United States senators by which the power has been taken from the state legislature and placed in the vote of the people.

A proposed reform that would enormously increase the influence of the people over government policies would be to change inauguration day from March 4 to a much earlier date, possibly January 1. Under the present system several months intervene between the fall elections and the time when the president and the new members of Congress take office. Meanwhile the issues on which they were elected may have completely changed and the administration has no expression of the popular will in regard to the new problems that have arisen. Moreover, if the election brings about a change of party, the retiring administration must either mark time until the following spring or carry out a program that is contrary to the

wishes of the majority of the voters.

In the various states the people have sought to exercise more direct control by means of the direct primary, initiative, referendum, and recall. By the first the selection of candidates is taken from party conventions and placed directly in the hands of the voters at the polls. Through the initiative, private citizens may prepare and propose to the people, without the intervention of the legislature, a bill or constitutional amendment. The referendum enables a prescribed number of private citizens to demand that an act passed by the legislature be submitted to the people for ratification or rejection. By the recall the people can, by popular vote, remove public officials before their terms expire.

THE JUDICIAL DEPARTMENT

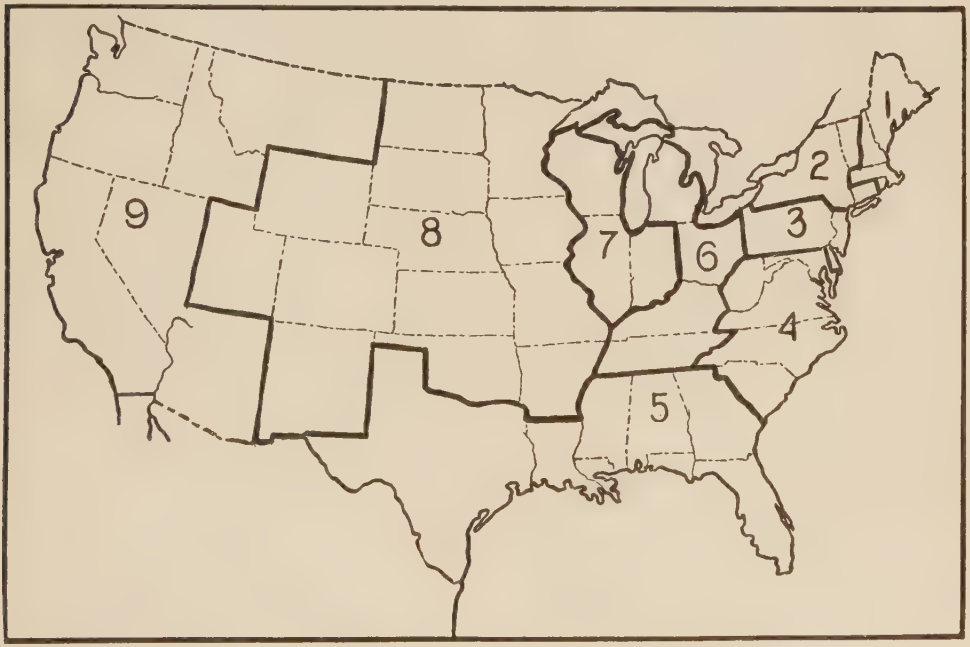
The third great division of the National Government is the judicial department. At its head is the Supreme Court of the United States. The legislative department, within such limitations as are prescribed by the Constitution, enacts its laws; the executive department enforces them, or carries them into effect; the judicial department sits in judgment upon the constitutionality of all laws passed, and applies them to such individual cases as the Constitution gives it jurisdiction over. If any act of Congress is contrary to the letter or to the spirit of the Constitution, the Supreme Court has the power to declare it null and void, and thereafter such a law is of no more effect than as though it had never been passed. Only a majority of the members of the Supreme Court is required to make any decision effective, and from such decision there is no appeal. The Supreme Court of the United States knows no higher judicial authority than itself, and throughout the world it is recognized as a most exalted and a most dignified legal body.

The Supreme Court. The Constitution provides that the judicial department shall be composed of a Supreme Court and of such inferior courts as may from time to time be established. It said nothing about the number of members that this court should be given, and, therefore, such decision was left to the lawmaking body. Congress at first provided for a Supreme Court of five members, one of whom should be chief justice of the United States and the other four should bear the dignified title of associate justices. No other officer in the legal department in the country is dignified by the title justice. Sometimes through ignorance we hear the members of this court called judges, but such a term is incorrectly applied. From a court of five members there has been an increase to nine members, as the business of the judicial department has expanded. There is no minimum age at which a man may become qualified for appointment as a member of the Supreme Court; few men have been appointed below the age of 50; ripe judgment, deep legal learning and undoubted ability and fixed character are qualifications which always have been recognized as essential in all Supreme Court justices.

The appointment of a justice is for life, or so long as his conduct does not bring him into disrepute. No justice of the court has ever dishonored his office. The present salary of each associate justice is $14,500; the chief justice receives $15,000. In a signal way the members of the Supreme Court are honored above all other officers of the government. Upon arriving at the age of 70 years, if a member has served at least ten years, he is entitled to honorable retirement to private life and to continue in receipt of his full salary as long as he shall live. If the chief justice retires, he loses $500 of his salary, for he is then placed on the same basis as the associate justices. The members of the Supreme Court are appointed by the president of the United States, subject to the approval of the Senate.

Inferior Courts. It is evident that one court of nine members, or even many

more than nine, could not properly attend to the vast volume of legal business that the Constitution provides shall fall within its jurisdiction. In order to systematize its procedure, and equalize the duties of the various members of the Supreme Court, the United States has been divided into nine so-called judicial circuits. The group of states in each circuit is shown in the subjoined map. Over each district one member of the Supreme Court exercises nominal oversight. In the various districts, courts inferior to the Supreme Court have been established. These are called United States District Courts, and at the present time there are 39 such Federal districts. The presiding officer of each District Court is called a United States district judge; the prosecuting officer to each District Court is the United States district attorney. Both of these officers receive appointment at the hands of the president, with confirmation by the Senate. Appeals from decisions of the United States District Courts are heard by what is termed the United States Circuit Court of Appeals. As judges of this latter court, there may be three Federal District judges sitting together, or a justice of the Supreme Court and any two district judges. In certain classes of cases, appeals may be carried from the District Court directly to the Supreme Court at Washington, beyond which there is no appeal. Formerly a class of courts called United States Circuit Courts existed, but they no longer exist.



JUDICIAL CIRCUITS OF THE UNITED STATES

Powers of the Supreme Court. The Constitution provides that the judicial power of the United States shall extend—

1. To all cases in law and equity arising under the Constitution, laws and treaties of the United States.
2. To all cases affecting ambassadors, other public ministers and consuls.
3. To all cases of admiralty and maritime jurisdiction.
4. To controversies to which the United States shall be a party.

5. To controversies between two or more states, between a state and citizens of different states, and between citizens of the same state claiming lands under grants of different states.

6. To controversies between a state or its citizens and foreign states, citizens, or subjects.

The average citizen comes into contact with the judicial power of the United States in matters referred to in paragraph four, above, oftener than in any other manner. If one violates the law of his state, his state courts will prosecute him; if he violates a law of the United States, the duty of prosecution falls upon the judicial department of the National Government. Burglary and murder are violations of state laws and the United States Government is not concerned with the punishment of such offenders; the state must regulate all of its own internal affairs and keep the peace within its boundaries. Counterfeiting the money of the United States is a matter in which the National Government is alone interested. Smuggling valuable property into the country without the payment of customs duties is likewise an offense against the dignity of the Federal Government. Such cases must be tried in the United States District Courts in the district in which the crime is committed. An infraction of the laws on sea, or upon the Great Lakes, whose waters beyond three miles from shore are the property of the National Government, represents another feature in which the Federal courts are supreme.

Woman Suffrage. With the ratification of the 19th amendment to the United States Constitution in August, 1920, the women citizens of this country came into possession of their full political rights. This was simply an extension of the democratic principle that political power should reside in the people. For many years women have been demanding a voice in the government which they help support by paying taxes and whose laws so profoundly affect their own welfare and that of their children. Years before 1920 many states had enfranchised their women citizens and others had granted them limited political powers.

Woman suffrage is not a cure-all for political ills, nor will all of its effects be immediately apparent to the political observer. In general it may be said, however, that the influence of the women voters is bearing good fruit in the improvement of conditions most intimately affecting the home and school. Public health, pure food, child labor, education, and local government are some of the fields in which they are showing initiative and independence of action. As a factor in state and national politics, however, the woman citizen is not to be underestimated. Women's committees are taking an increasingly important part in the great party campaigns and more and more women are becoming candidates for important elective offices. Already several have sat in the House of Representatives in Washington, while others have filled high positions in their state governments.

Good Citizenship. It should be remembered that new privileges bring new responsibilities. It is the duty of every woman, as well as of every man, to go to the polls and vote. The humblest voter is an integral part of his government. We live under what we are proud to call a democratic system of government, and this means that the primary political power rests in the citizen. Any man or woman who does not seek to keep informed regarding the onward movement of the power of the citizen, and who does not study to understand the trend of events, loses much of his ability to help make our government what it should be. When we complain of the laxity of governmental control and of the occasional corruption which flaunts itself before our eyes, we are really condemning ourselves, for everywhere in America we have just as good government as we deserve to have.

PLAN FOR THE STUDY OF THE GOVERNMENT OF CANADA

Material for the development of this outline may be found in the article on Canada, Volume I, under the section on Government, and in the articles on the various provinces of the Dominion, which appear in their alphabetical places in the first seven volumes.

I. Form of Government

A representative democracy modeled in its essential features on the government of Great Britain and composed of a federation of independent provinces.

II. Constitution

1. How Formed
   The British North America Act
2. Provisions of
3. Method of Amending

III. Executive Branch

1. Governor-General
   (a) Appointment
   (b) Powers and limitations
   (c) Duties
   (d) Salary
2. King's Privy Council
   (a) Appointment
   (b) Departments of government in their charge
   (c) Ministers without portfolio
   (d) Relations with House of Commons
   (e) Salaries
3. Premier
   (a) Importance of
   (b) Qualifications
   (c) Method of attaining office
   (d) How term of office is determined
   (e) Relations with Parliament
   (f) Powers and duties
   (g) Salary
4. High Commissioner
   (a) Qualifications
   (b) Appointment
   (c) Place of residence
   (d) Duties

IV. Legislative Branch—Parliament

1. Powers
2. Houses of
3. Members of the Senate
   (a) Qualifications
   (b) Appointment
   (c) Term of office
   (d) Number from each province
   (e) Salary
4. Members of the House of Commons
   (a) Qualifications
   (b) Number and apportionment among the provinces
   (c) Election
   (d) Term of office
   (e) Salaries
5. How a Bill Becomes a Law

V. Judicial Branch

1. Federal Courts
   (a) Supreme Court
   (b) Exchequer Court
   (c) Admiralty Court
2. Courts of the Provinces
3. Judges
   (a) Appointment
   (b) Term of office

VI. Political Parties

VII. Provincial Government

The system of government in the provinces is modeled on that of the Dominion

1. Executive Branch
   (a) Lieutenant-Governor
      (1) Appointment and term of office
      (2) Powers
   (b) Advisory or Executive Council
2. Legislature
   Comparison of legislatures of Quebec and Nova Scotia with those of the other provinces
3. Courts

PLAN FOR THE STUDY OF GOVERNMENT

IMPORTANCE OF THE STUDY

A republic is a form of government under which the rulers are chosen by the qualified voters. The United States is a Federal republic. That the permanency of our government depends upon the intelligence of its citizens is a truth needing no demonstration, and one which should be evident to all.

That a large percentage of our boys and girls are allowed to reach manhood's and womanhood's estate with little or no knowledge of the organization and operation of the government under which they live is a fact demonstrated everyday by the corrupt methods practiced by the governments of far too many cities and states, and by occasional attempts at corrupt practices in the National Government.

That the study of civil government is receiving increased attention in the public schools is evidence of an awakening of the public conscience on the importance of the subject.

Nevertheless much remains to be done, and the following outline is herewith presented for the purpose of aiding all who are interested in the study of our government.

The outline is based upon the Constitution. This new ten volume REFERENCE WORK contains a large number of articles bearing upon civil government. See the division *Law and Political Science*, page LVIII, Suggested Courses of Reading, Topical Index to the entire work.

THE UNITED STATES GOVERNMENT

ATTEMPTS TO FORM A UNION

I. New England Confederation
II. Albany Conventions
III. Articles of Confederation
IV. Constitutional Convention
1. PRELIMINARY STEPS
2. DELEGATES
3. ORGANIZATIONS
4. PLANS PROPOSED
5. COMPROMISES
6. CONSTITUTION ADOPTED

PURPOSES OF THE CONSTITUTION

1. To form a more perfect union
2. To establish justice
3. To insure domestic tranquillity
4. To provide for the common defense
5. To promote the general welfare
6. To secure the blessings of liberty to the people

LEGISLATIVE DEPARTMENT

House of Representatives

I. Members
1. NUMBER
2. TERM OF OFFICE
3. SALARY
4. ELECTION
5. QUALIFICATIONS
   (a) Age
   (b) Citizenship
   (c) Official disencumbrance
6. PRIVILEGES AND DISABILITIES
7. VACANCIES

II. Sole Powers
1. ORGANIZATION
   (a) Speaker
   (b) Clerk
   (c) Other officers
   (d) Committees
2. ORIGINATE BILLS FOR REVENUE
3. ORIGINATE IMPEACHMENTS

The Senate

I. Members
1. NUMBER
2. TERM OF OFFICE
3. SALARY
4. ELECTION
5. QUALIFICATIONS
   (a) Age
   (b) Citizenship
   (c) Residence
   (d) Official disencumbrance

II. Sole Powers

1. Organization
   (a) Vice-President
   (b) President *pro tempore*
   (c) Secretary
   (d) Other officers
   (e) Committees
2. Confirmation of Presidential appointments
3. Ratification of treaties
4. Trial of impeachments

Provisions Common to Both Houses

1. Each house to judge election returns and qualifications of its members
2. Quorum
   (a) A majority of each house
3. Each house to determine its own rules
4. Punishments
   (a) Disorderly conduct
   (b) Expulsion
5. Records
   (a) Each house must keep a journal
   (b) Publication
6. Yeas and nays
   (a) Manner of taking
   (b) Objects
7. Adjournment
8. Official rights
   (a) Fredom from arrest
   (b) Freedom of speech

Powers of Congress

I. Express Powers

1. To lay and collect taxes
2. To borrow money on credit of the United States
3. To regulate commerce
4. To establish a uniform rule of naturalization
5. To establish uniform laws of bankruptcy
6. To coin money and regulate the value
7. To fix the standards of weights and measures
8. To provide for punishment of counterfeiting
9. To establish post offices and post roads
10. To grant patents and copyrights
11. To establish inferior United States courts
12. To have charge of matters related to war
13. To exercise control of United States territory

II. Implied and Incidental Powers

1. To purchase foreign territory
2. To establish military and naval academies
3. To make internal improvements
4. To make all laws necessary to carry into effect all powers

III. Powers Prohibited and Restricted

1. To suspend the writ of habeas corpus
2. To pass a bill of attainder
3. To pass an *ex post facto* law
4. To lay direct taxes unless in proportion to the census
5. To lay taxes on state exports
6. To give preference to the ports of one state over those of another
7. To compel vessels to enter any port other than the one for which it is bound
8. To draw money from treasury without lawful appropriations being made
9. To grant titles of nobility
10. To abridge freedom of speech or of the press
11. To establish a religion or prohibit its exercise
12. To deny the right of assembling to petition the government
13. To repudiate debts

EXECUTIVE DEPARTMENT

I. The President

1. Qualifications
   (a) Birth
   (b) Age
   (c) Residence
2. Election
   (a) Nomination
   (b) Electoral college
   (c) House of Representatives

3. Inauguration
   (a) Oath of office
4. Length of term—salary
5. Reelection
6. Powers
   (a) To enforce the laws
   (b) To appoint certain officials (appointment confirmed by Senate)
   (c) Commander-in-chief of army and navy
7. Duties
   (a) To inform Congress of state of country
   (b) To recommend legislation
   (c) To sign or veto bills
8. Presidential succession

II. Vice-President

1. Qualification (See *President*)
2. Election
   (a) Electoral college
   (b) Senate

III. Cabinet

1. Appointment
2. Salary
3. Members
   (a) Secretary of State
   Has charge of foreign and domestic relations
   (b) Secretary of Treasury
   Collects and disburses public money
   (c) Secretary of War
   Directs the army and military matters
   (d) Secretary of Navy
   Controls the navy and naval affairs
   (e) Secretary of Interior
   Manages public lands, education, Indians, pensions and patents
   (f) Postmaster-General
   Has charge of transmitting and distributing mail matter
   (g) Attorney-General
   Has charge of the legal department
   (h) Secretary of Agriculture
   Has charge of the agricultural reports and development
   (i) Secretary of Commerce
   Has charge of corporations and manufactures, census bureau, fisheries, etc.
   (j) Secretary of Labor
   Promotes the welfare of wage earners of the country.

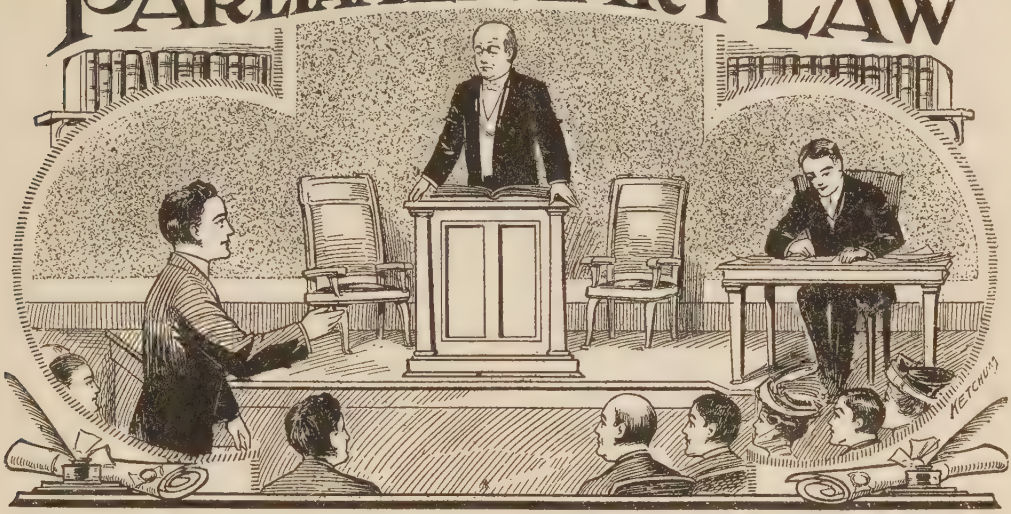
JUDICIAL DEPARTMENT

I. Purpose

II. Tribunals

1. Supreme Court
   (a) Members
   (b) Sessions
   (c) Jurisdiction
2. Inferior Courts.
   (a) Circuit Courts—number
   (b) District Courts—number
   (c) Court of Claims
3. Judges
   (a) How chosen
   (b) Term of office
   (c) Salary
   (d) Oath of office
   (e) Number
   (f) Removals
4. Officers

PARLIAMENTARY LAW



General Interest. This is the day of organizations. From the local literary or debating society found in nearly every school to the halls of the state Legislatures and to Congress, there is an unbroken chain of organizations, literary, political, business and social, and each member of any of them desires to know how to conduct his organization.

Feeling the general need of a knowledge of parliamentary law, the editors of this ten volume REFERENCE WORK had a practical summary prepared for this volume. They were remarkably fortunate in securing the services of Mr. Norton F. Brand, LL.B., former editor of the Philippine *Official Gazette* and an expert parliamentarian, to prepare the work.

Deliberative Assemblies. From small beginnings the deliberative assembly has grown until, especially here in America, it has become one of the dominating features of modern life. It covers every phase of life and includes literary, religious, political, economic, fraternal and every other conceivable species of societies, associations and assemblies. Some of these are voluntary, others are incorporated, while still others, like city councils, the Legislatures and the houses of Congress, consist of delegates elected or appointed by virtue of statute. But all are deliberative bodies, and subject to common parliamentary law.

Special Rules of Order. Special rules of order are adopted by practically all assemblies to meet their individual needs. These vary in scope and complexity according to the purposes of the organization; those of the houses of Congress and of state Legislatures treat of many matters, while those of a voluntary association are ordinarily of the simplest description. In adopting rules of order, the needs of the assembly and the probable size of the body should be considered, and no unnecessary rules adopted. The larger the body, the stricter the discipline must be. On the other hand, a society of very limited numbers may govern itself entirely by the common parliamentary law as laid down in the manuals of Cushing, Roberts and other standard authorities. Many of our ablest public men owe their position neither to knowledge of politics nor to their knowledge of civil law,

but to their intimate acquaintance with the subject of parliamentary procedure.

ORGANIZATION OF SOCIETIES

Temporary Organization. Where the organization of a society or association for some particular purpose is deemed advisable, it is the custom for those interested to issue a call for a mass meeting at a certain place, day and hour. At the hour fixed it is proper for anyone to step forward and call the meeting to order, whereupon those present should seat themselves and give attention to the speaker. The speaker will then either propose someone for chairman of the meeting or call for nominations. If the latter course is pursued he will put the nominations to vote, beginning with the one first made and continuing until someone receives a majority vote in his favor. As soon as a chairman is elected he should come forward, thank the assembly, see that a clerk is elected in the same manner and state the purpose of the meeting. A resolution should then be proposed, to the effect that a society be formed for the purpose named. If such resolution fail, it may be made again after those in opposition have left, or at a subsequent meeting called for that purpose.

Permanent Organization. If the resolution is carried, the assembly proceeds to effect a permanent organization by the adoption of a constitution and the election of permanent officers. This is generally done by choosing two committees, usually of three members each, one to draft a constitution and the other to nominate permanent officers. An adjournment is then often taken to give the committees an opportunity to draft their reports, unless the promoters have drafted a constitution and prepared a list of officers before calling the meeting; in which event the committee may report immediately.

The chairmen of the respective committees, having been called on to report, and having addressed the chair and been recognized, read their reports and then hand them to the presiding officers. Someone moves the adoption of the reports. The chairman then reads the proposed constitution article by article, pausing after each article to allow an opportunity for amendment. After the whole constitution has been read, it is declared open for amendment as a whole. Upon the final adoption of the constitution as amended a recess is taken to give those present an opportunity to sign it; and thereafter no one is permitted to vote save such as have signed. Those who sign the constitution at this time become what are known as charter members of the organization.

If the committee has also reported by-laws, they are now treated in the same manner as the proposed constitution. After their adoption the report of the committee on permanent officers is acted on. As each permanent officer is elected he takes the place of the corresponding temporary officer.

Incorporation. If the society is to hold real estate or engage in business to any great extent, it should be incorporated. The statutes of the various states usually provide that a society may be incorporated by the filing of a copy of its articles of association containing certain recitals, in the office of a certain county officer or in the office of the secretary of state. Where the society is to be incorporated a lawyer should be consulted to see that the provisions of the constitution comply with state law.

Constitution and By-Laws. In small societies it is not necessary to have both a constitution and by-laws, and many societies have only one set of rules, which may be called by either name. The sole purpose of having both is to place the more fundamental matters in the constitution, where they will be more difficult to amend than would by-laws. A larger majority is generally required to amend the constitution, a common requirement being a two-thirds vote to amend the by-laws and a three-fourths vote to amend the constitution.

The constitution generally treats of (1) the name and object of the society, (2) conditions of membership, (3) election of officers, (4) meetings (without going into details), (5) quorum and (6) amendments to constitution and by-laws; while the by-laws deal with (1) dues, (2) duties of officers, (3) committees and (4) the order of business, and with all other matters of detail, except decorum, debate and matters of parliamentary practice, which should be covered by special rules of order or left to the common parliamentary law. The by-laws should provide that a certain manual of parliamentary law (as Cushing's or Roberts') should be binding in all cases where not in conflict with the constitution, by-laws or rules of order of the society.

Rules of Order and Standing Rules. Rules of order differ from a constitution and by-laws in the fact that they may be amended without notice being given at a previous meeting; but a two-thirds vote is generally required to effect an amendment. A standing rule is one adopted at any meeting by a majority vote. It cannot be suspended, altered or rescinded at the same meeting, except by reconsideration, but may be at any subsequent meeting by a bare majority vote.

OFFICERS

Two officers are absolutely essential to the holding of meetings and the transaction of business; a presiding officer, generally called chairman or president, and a recording officer, who has the title of clerk or secretary. In the absence of either of these the society cannot act until the vacancy is filled by election or appointment. Besides these officers, most permanent bodies select two others: a vice-president to preside in the absence of the president and a treasurer to care for the society's funds. Where the body is of such size that disorder is to be apprehended, the constitution should also provide for a sergeant-at-arms; and in the case of literary societies a critic should be added.

All officers should be elected by a majority vote of all present and voting on the particular office.

The Presiding Officer. It is the duty of the presiding officer to be present at the appointed hour and call the meeting to order. He should entertain all motions properly presented, state them in their order, submit them to the vote of the society and declare the result. It is also his duty to preserve order, enforce decorum in debate, give the floor to the one entitled to it in case of dispute, and inform the assembly on points of order when requested. In conjunction with the recording officer, he signs all important communications emanating from the society, warrants on the treasury and contracts authorized by the society.

The success of a society depends in great measure upon the character of its president. He should be well informed in parliamentary procedure, absolutely impartial and honestly disposed to subordinate his opinions to the will of the majority. Ignorance of discipline will loose the bonds of discipline and partiality will disrupt the society. The president is entirely within his rights in speaking fully upon all points of order, even without leaving the chair; but upon all controverted questions he should, so far as possible, conceal his opinion. If necessary for him to speak on the question he should go no further than attempt, by conciliatory means, to bring the parties together. Of course what has been said does not refer to mere matters of routine where no antagonism has arisen.

The president does not forfeit the right to vote, but it is not customary for him to vote except where the vote is by ballot or when the vote is evenly divided.

The presiding officer should rise to put a question to vote, but may state it sitting. Where the question relates especially to the presiding officer, it should not be put to a vote by him, but by the secretary or, in the event of his failure

to do so, by the person making the motion.

Addressing the Chair. The president should never refer to himself as "I," but as "the Chair." In mentioning something done outside a meeting he may properly speak of himself as "your President." Members should address the president as "Mr. President" or "Madam President." A woman is to be addressed by the latter title whether married or unmarried. In the course of his remarks a member should refer to "the Chair."

The Recording Officer. Next to the presiding officer a suitable secretary is most essential to the welfare of a society. A secretary should understand the keeping of books and the handling of correspondence, and should be zealous and diligent in the performance of his duties. Societies are continually being brought to the verge of ruin by ignorant or negligent secretaries, appointed because they were popular, needed the money or wanted the office. It is the duty of the secretary to keep proper minutes of the meetings, read all papers ordered to be read, call the roll of members, keep the books and papers of the society, prepare a program of the meeting for the chair, keep a list of all standing and select committees, deliver to each chairman of a committee a list of its members with the papers, if any, referred to it, indorse reports with the date of their reception and what further action was taken thereon, and attend to the correspondence of the society (unless there is a separate corresponding secretary).

Minutes. The minutes are the record of the meetings of a society, kept by its recording officer. If the secretary is absent at the opening of a meeting, the president should appoint an acting secretary to keep the record either for that meeting or until the secretary arrives.

Immediately after the calling of a meeting to order, the clerk or acting clerk reads the minutes of the previous meeting. The Chair then states that if there is no objection the minutes will stand approved. If any objection is raised the minutes may, by general consent, be corrected accordingly; or, if consent is withheld they may be ordered corrected by a vote of the society. All corrections having been made, the minutes are declared approved and are signed by the writer (secretary or acting secretary) and the Chair.

Approval of the minutes does not prevent their being again corrected at any subsequent time without a motion to reconsider, by a simple vote to amend.

The minutes submitted for amendment may be already recorded at length in the minute book, in which case the corrections should be entered in the margin. The practice of some secretaries is to write a rough draft of the minutes in a cheap book kept for that purpose and after their submission and correction transcribe them into the minute book. The rough draft should never be written on loose sheets, as they are often lost; and lost minutes are a fertile source of dispute. This practice, however, is not permitted by some organizations because of the liability to error in transcribing the approved report into the permanent record book. In these organizations the permanent record is approved.

Contents of Minutes. The minutes of the meeting should open with a statement that on a certain day and hour a certain kind of meeting (regular or special, as the case may be) of the society (naming it) was called to order by the president (or otherwise) at a certain place (save where the place is always the same); and that the minutes of the former meeting were read and approved. If the president or the secretary were absent, such fact should be noted, together with the appointment of a president or secretary *pro tem.* And if the reading of the minutes was for any reason omitted, that fact also should be stated.

As to the body of the minutes, much depends on the work of the society and the kind of meeting. It may be stated,

however, as a leading principle, that only things *done* need be recorded. Every motion which is voted on should be entered, whether the vote be in the affirmative or in the negative. But as a rule it is not necessary to report debates or make any reference to things proposed but not carried out. Nor should the secretary utilize the minutes to reflect, either favorably or otherwise, on anything that has been said or done.

The Treasurer. The duties of the treasurer vary according to the constitution of the society. Formerly he had charge of the funds, collected all sums due the society and managed its financial affairs generally. But the practice more prevalent at the present time is for the secretary to attend to the finances as well as the books of his society. In such case the treasurer acts merely as a banker, receiving from the secretary the dues and other moneys collected by the latter, and paying out money only on warrants signed by the president and countersigned by the secretary.

The treasurer (and secretary, if he handles money) should report periodically to the society, showing the amount received at the beginning of the period, receipts and expenditures during the period, and amount on hand upon filing the report. The report, together with the treasurer's receipts or vouchers for money disbursed, should then be referred to an auditing committee of two or three persons. If the auditing committee report favorably and the report is accepted by the society, the treasurer is relieved from liability for the past, even though he subsequently loses his vouchers.

Where there are many items in the account it is not advisable to read all the items to the society. It is better to tender a short report of the amount on hand upon assuming office, the totals of receipts and disbursements with perhaps some of the larger items, and the amount on hand at the time of the report. The report should conclude with a reference to an annexed "statement of receipts and expenditures."

Form of Treasurer's Report

"The following semiannual report is respectfully submitted by the undersigned, Treasurer of the Mount Royal Literary Society.

The balance on hand on July 1st, 1912, the beginning of the semiannual period, was ..... dollars and ..... cents. Total receipts from all sources for the period, ... dollars and ..... cents; during the same period the disbursements aggregate ..... dollars and ..... cents, leaving a balance in my hands of ..... dollars and ..... cents.

A statement of receipts and disbursements is hereto annexed, giving in itemized form the sources of the receipts and the purposes for which the disbursements have been made.

All of which is respectfully submitted.

A..... B.....,
Treasurer."

MEETINGS AND SESSIONS

Meetings. Meetings are of four kinds: regular, adjourned regular, special and adjourned special; and in addition to these the constitutions of most societies provide for an annual or semiannual meeting for the election of officers and the reception of reports of outgoing officers. Regular or "stated" meetings are the weekly, monthly or quarterly meetings provided for in the constitution or by-laws. Provision is generally made for the calling of special meetings at other times, by the presiding or recording officer or by a certain number of members, the parties calling the meeting being required to give notice to the membership by publication in a newspaper, by mail or in some other suitable manner. It is also customary to provide that no matters may be considered at a special meeting but such as have been stated in the notice of meeting.

Sessions. If there is not time to dispose of all of the business brought up before a regular or special meeting, it is customary to take an adjournment to some time before the date of the next

regular meeting; and at that time a further adjournment may be taken if desired. The original meeting, with the adjourned meeting or meetings dependent upon it, constitutes a *session*. The next regular meeting begins a new session.

This matter of sessions is important in two ways. In the first place, business remaining unfinished at the end of a session falls to the ground, and for this reason members wishing to postpone unfinished business to an adjourned meeting should be careful to move to adjourn to meet at a time specified, or at the call of the Chair, since a motion merely "to adjourn" or "to adjourn without day" (sine die) terminates the session. Secondly, matters once rejected by an assembly cannot be again brought up at the same session except upon a motion to reconsider; hence a rejected proposition cannot be renewed either after a recess or at an adjourned meeting. But as one session cannot (except by amending the constitution, by-laws or rules, which requires more than a majority vote) interfere with or bind any future session, it is proper to reintroduce a rejected measure at any subsequent regular meeting.

Where members show a disposition to take advantage of this rule and repeatedly renew obnoxious motions at successive regular meetings, it is advisable to have the by-laws provide that no rejected measure may be renewed within, say, three months after its rejection.

Quorum. A deliberative body cannot transact business unless a quorum is present. A quorum consists of a majority of the members unless the constitution or by-laws provide for a smaller number. This is always advisable in the case of voluntary societies. In such case the members are under no obligation to attend, and to require a large quorum would make it practically impossible to hold meetings.

With committees, however, the case is different. There a majority should always be required.

The presiding officer should not call a meeting to order until a quorum is present, unless it becomes apparent that no quorum will be present, when the meeting may be convened for the mere purpose of adjourning.

If, at any time during a meeting, the number present is reduced below a quorum, either the Chair or any member may raise the point of "no quorum." The Chair should then count the members present, and if there is no quorum, order the meeting adjourned, first allowing those present an opportunity to fix the time and place of adjournment.

Where the question is not raised the assembly may proceed with its business though there is no quorum.

Order of Business. The by-laws of the assembly generally prescribe the order of business. Where this is not done the following order is to be followed:

(1) Reading and approval of minutes of previous meeting.
(2) Special order for the day.
(3) Reports of standing committees.
(4) Reports of select committees.
(5) Unfinished business.
(6) New business.

If the assembly desires to take up business out of its order, it may authorize such action by a two-thirds vote. The same result may often be achieved by laying measures on the table as they come up until the measure which the assembly wishes to consider is reached. This requires only a majority vote.

MOTIONS

Introduction of Business. All business is regularly brought before the society by motion as the presentation of a communication; however, where no objection is offered many matters of routine are dispatched without resort to these formalities. In order to make a motion a member must rise to his feet and address the Chair, thus, "Mr. President." After the Chair has, by calling him by name, recognized the member, the

latter has the floor and is in a position to speak upon the motion.

Very often two or more members rise at about the same time. In awarding the floor in such case the Chair should be guided by the following considerations: (1) The member who originally proposed a measure is entitled to be first heard on it; (2) no member is entitled to the floor a second time until all who desire to speak have spoken; and (3) where neither of the preceding rules apply, the interests of the society are best subserved by permitting the friends and enemies of the measure to alternate. In case of doubt the president may, if he choose, submit the question to a vote of the members; and, conversely, any two members may appeal from the decision of the Chair.

After a member has obtained the floor it is generally improper to interrupt him by calling for "the question" or by moving to adjourn or for any other purpose except to raise a point of order. Certain extraordinary circumstances where interruption is proper will be considered later.

Where interruption is proper the member interrupting should state his reason therefor immediately upon arising, without waiting to be himself recognized.

Seconding the Motion. A member having obtained the floor and made a motion, the Chair should inquire whether it meets with a second. He should wait a reasonable time for a second (which may be made by any member without rising or addressing the Chair), and after the motion has been seconded he should also wait a reasonable time for the mover to claim the floor. Until a motion is stated by the Chair, the mover is at liberty to modify it, and should he do so the seconder may withdraw his second. The Chair may, before stating a principal motion or an amendment, require that it be first reduced to writing and handed to him.

The Chair may state a motion without a second if no one objects, and, if there is an objection, may himself second it and then state it.

Classification of Motions. Motions are of four general classes: (1) the principal motion or main question, being some measure submitted to the society for determination; (2) subsidiary motions, used to properly dispose of other motions; (3) incidental questions, or such as naturally arise out of other questions; and (4) privileged questions, which on account of their importance take precedence of all other questions.

Precedence of Motions. All of the three last-mentioned classes of motions have been invented merely for the purpose of enabling societies to properly dispose of the matters coming before them; that is, to dispose of the principal motions. Hence they must be considered before the principal motion is voted on, though made after it; that is, they take precedence of the principal motion. They also take precedence, one of another, as indicated in the following list. The authorities differ slightly as to the proper order of motions. In the text, Roberts, the most widely accepted authority, has been followed. Beginning at the top of the list, each motion takes precedence of all below it.

Privileged Questions

To fix the time to which to adjourn.
Adjourn.
Take a recess.
Questions of privilege.
Call for orders of the day.

Incidental Questions

Appeal: Questions of order.
Objection to consideration of question.
Reading of papers.
Leave to withdraw a motion.
Suspension of the rules.

Subsidiary Motions

Lay on the table.
Previous question.
Postpone to a certain time.
Commit or refer or recommit.
Amend; postpone indefinitely.

Principal Motion

Illustrations of Precedence. Suppose, for instance, a motion has been made to appropriate $75 from the funds of the society for the purchase of regalia for the officers. This is a *principal motion.* After the motion has been stated, but before it has been put to a vote, a member rises and moves to *amend* by changing the amount to $90. A second member thinks that the proper amount can be determined only after further investigation, and so moves that the matter be *referred* to a committee with instructions to inquire as to the proper price of regalia and report to the society. A third member, who has certain business of his own to introduce and thinks the matter of regalia can well wait until after his business has been considered, moves that the motion as to regalia be *laid on the table.* At this juncture a member from the country, who is anxious to get home, rises and makes a motion to adjourn.

There are now five motions before the society. The motion to adjourn, being of the highest rank, must be first voted on. If it is lost, the motion to lay on the table is put; and if it also is voted down, the Chair must next put to a vote the motion next in order of precedence; namely, the motion to refer to a committee. Should this also fail, it is the duty of the Chair to put the amendment to a vote, and after that either the principal motion as amended or, in case the amendment was voted down, the principal motion as it was originally stated.

Exceptional Motions and Questions. Three of the motions given in the table above; namely, questions of privilege, call for the orders of the day, and objection to the consideration of a question, are practically confined to legislative bodies. Since occasion for their use would seldom arise in a voluntary society, they will not be treated in detail.

Principal Motions. A main (or principal) question or motion is one made to secure the action of the society upon some proposed measure. Only one main question can be before the society at one time, and thus, while it is perfectly proper to move any number of subsidiary, incidental or privileged motions while a principal motion is pending, it is not proper to make a second principal motion until the first one has been finally disposed of. The main question yields to all other motions.

Once rejected or indefinitely postponed, it cannot be again brought up (except by motion to reconsider) at the same meeting or at any adjournment thereof. And what cannot be done directly may be done indirectly; that is, by moving the converse of a motion which has been voted down.

Fixing Time to Which to Adjourn. A motion to fix the time to which to adjourn, if made when some other motion is pending, is the highest of all motions. It may be made even after the motion to adjourn has been put and carried, provided the Chair has not declared the result. If made at such time, or at any time when other matters are pending, it is not debatable. But if the motion be made when no other motion is pending, it stands like any other principal question and may be both debated and amended by altering the time. The proper form is, "I move that when this society adjourns, it adjourns to meet at ..... (naming the time).

Motion to Adjourn. If stated in unqualified form, as, "I move that we adjourn," this motion takes precedence of all others save that given in the preceding paragraph. It is neither debatable nor amendable; it cannot be reconsidered, nor can any subsidiary motion be applied to it. But if qualified, as by stating the time or place to which adjournment shall be taken, it loses its privileged character and may be debated. The motion may be repeated after any further business has been transacted, even though it consist merely of progress in debate.

A committee is not said to "adjourn," but to "rise," which is the same thing.

Taking a Recess. This motion, like the preceding ones, is highly privileged and cannot be debated or amended, if made where there is a special rule fixing the time at which the meeting shall be resumed after a recess. Otherwise it is not privileged and can be made only where there is no other business before the society. The ordinary practice is to move to take a recess for a certain time, say, 15 minutes, or "until called to order by the sound of the gavel."

Questions of Order and Appeals. It is the duty of the presiding officer to see that everything is done in proper order and that a proper decorum is preserved in debate, and he should promptly check any departure from the rules. Should he fail to do so, any member may rise in his place and address the Chair, saying, "Mr. President: I rise to a point of order." The Chair should then request him to state the point. Having stated the point, the speaker should immediately seat himself. The Chair should decide the point without debate, though he may permit a brief discussion if he thinks it advisable.

Anyone may appeal from the decision of the Chair. But, unlike a question of order, an appeal must be seconded. The question is put as follows: "Shall the decision of the Chair stand as the judgment of the assembly?" In case of a tie the decision of the Chair is sustained.

Of course, while an appeal is pending it is improper to make another appeal. To permit one appeal to be superimposed upon another would lead to endless disorder. All points of order raised pending the appeal should be decided summarily by the Chair, whose conduct may be subsequently inquired into by the society if it deems advisable.

Reading of Papers. Every member is entitled to have a paper read before he is required to vote in regard to it; and it is the duty of the Chair to direct the reading of other papers when satisfied that the reading is requested in good faith and not for the purpose of delay, but if anyone objects to their being read, the reading must be authorized by a vote of the society. Request for the reading of papers is not subject to debate or amendment.

Withdrawal of a Motion. Until a motion has been stated by the Chair it remains within the control of the mover, who may modify or withdraw it; but after it is stated it becomes the property of the society and can neither be modified nor withdrawn without its consent. True, the Chair may permit a modification or withdrawal if there is no objection, but where objection is raised the application must be put to a vote forthwith, without debate or amendment.

Suspension of the Rules. Rules of order adopted by a society (but not its constitution and by-laws) may be suspended by a two-thirds vote, unless the rule to be suspended be one giving certain rights to a minority of one-third or less. A motion to suspend the rules is, like the two preceding motions, summary, and can neither be debated nor amended. The rules cannot be suspended generally, and therefore the motion must be "to suspend the rules which interfere with," etc., giving the purpose for which suspension is sought.

Motion to Lay on the Table. By a bare majority vote a society may "lay the question on the table," that is to say, postpone its consideration until such time as the society may desire to consider it. The motion is neither debatable nor amendable nor can any other subsidiary motion be applied to it. These restrictions also apply to the *motion to take* from the table. But there is this difference between them. The latter motion is not privileged, ranks only as an ordinary motion and cannot be made when there is any other business before the society. It is thus more difficult to take a question from the table than to lay

it on the table, and for this reason the motion to lay on the table is often used to suppress a question. To avoid this abuse, it is advisable in voluntary societies to require a two-thirds vote to lay on the table.

There is one thing peculiar about the effect of this motion. It carries to the table not only the particular question or measure to which it is applied, but also what is necessarily connected with it. For instance, a vote to lay a proposed amendment on the table carries the main question to the table, and a vote to lay the main question on the table carries to the table not only the main question but also any amendment and amendments to the amendment which may have been proposed.

Previous Question. The name of this motion does not indicate its object, a fact which has led to much confusion. The object is to put a stop to debate, as shown in the form of the motion sometimes used: "I move that debate be now closed." Unfortunately the older form of the motion, "Shall the main question be now put?" is still in general use.

The motion is not debatable or amendable, nor may any other subsidiary motion be applied to it; but the previous question itself may be applied, not only to the main question under discussion, but also to any debatable dependent motion which may be pending.

When members call for the previous question the debate must be stopped at once and the question of closing debate be put to the society. If the motion is lost the debate is resumed, but if the motion is adopted the Chair should (unless the mover confines the motion to a single pending motion) proceed to put the question on all motions pending, taking them in their order of precedence, until the main question is in some manner disposed of; for example, being referred to a committee, postponed or finally voted on.

The right of a bare majority to use the previous question is known as the "gag law." While proper in legislative bodies, it should not be tolerated in ordinary societies. Their rules of order should require a two-thirds vote to close debate.

Motions to Postpone. The two motions to postpone, that to postpone to a certain time and that to postpone indefinitely, are used for different purposes and are consequently governed by different rules. The former motion is designed to give members an opportunity to inform themselves on the question before voting, while the motion to postpone indefinitely is generally used by the enemies of a measure to avoid taking sides directly on it.

The motion to postpone to a certain day may be amended by altering the time and is debatable only as to the propriety of the postponement; while the motion to postpone indefinitely cannot be amended, but it opens up the main question to debate generally.

The effect of an affirmative vote on the former motion is to prevent the society from considering the matter postponed before the time fixed, which must not be later than the first day of the next session; while an affirmative vote on the latter motion in effect kills the measure.

COMMITTEES

Many of the matters brought before a society are in such shape that the society cannot act intelligibly with respect to them until they have been much more fully investigated than would be possible on the floor of the assembly. Such matters it generally refers to a small number of members called a committee. The committee is the hand or brains of the society, according as it is expected to act or merely to deliberate. If for action, it should consist of but few members and of such only as sympathize with the matter in hand. If to deliberate, its membership may be larger and should embrace both those who favor and those who oppose the measure.

Kinds of Committees. There are three general classes of committees: (1) standing or stated committees, (2) select committees and (3) the committee of the whole. The third is practically confined to legislative bodies and need not be considered here.

Standing committees are generally appointed at the same time and for the same term as the society's officers. They are charged with different departments of the society's work, and matters pertaining to a certain subject are generally referred to the appropriate committee, although the society is at liberty to send any matter to any committee it deems proper. A select committee is one chosen to take charge of a special subject and which is discharged upon the reception of its report.

Motion to Commit. The motion to refer a subject to a committee (or to recommit, which is governed by the same rules) may be amended by altering the committee or by giving it instructions. It is also debatable, and where it includes instructions it opens the merits of the main question to debate. The motion may be simply to refer the matter to a committee, or it may go further and state the kind of committee; and, if the reference is to a select committee, it may also state the number of committeemen and the manner in which they shall be selected.

Selection of Committee. Where the motion to commit does not state the number of committeemen, the matter is generally determined informally, the Chair asking of how many the committee shall consist, and, after various numbers have been suggested, putting them to a vote, beginning with the smallest number and continuing until a majority vote in favor of a certain number is secured. The number being determined, if the motion to commit has not fixed the manner of choice, the Chair next requires how the committee shall be appointed. Someone will generally suggest that the Chair "appoint," and if no objection is made the Chair may name the committeemen. Or the members may "nominate" committeemen, no member nominating more than one, the nominations to be voted on individually, beginning with the one first made. Or, finally, the committee may be "elected" upon a motion naming the full number of committeemen.

Organization of Committee. In its organization a committee is a miniature society. It cannot exist without a chairman and, unless of the simplest nature, should have a clerk. The society may name the chairman. Should it fail to do so, the committeeman first named convenes the committee and acts as chairman, unless the committee choose another, which it may do.

Committee Procedure. The duties of committee chairman and clerk are similar to those of the corresponding officers of the assembly, and the manner of proceeding in a large committee is very much the same as in a small assembly; but in a small committee the procedure is much simpler. There is no necessity, for instance, of rising to make a motion. But however small, it can act only when a majority of its members are present. Its action must be based on the *conference* of a quorum, not on *consent* of absentees.

Where resolutions have been referred to the committee, they should first be read through as a whole, and then be read section by section, pausing after each section for amendments. Amendments made by the committee must be written on a separate sheet, the committee having no right to tamper with papers referred to them.

But where the committee has merely been directed to draft resolutions, the usual course is for the committee to appoint a *subcommittee* of one or three to draft the resolutions. The draft furnished by the subcommittee is amended by the committee, section by section, and then the draft as amended is voted on as a whole; and if adopted, the resolu-

tions are rewritten with the amendments incorporated.

Report of Committee. When a committee has completed the work assigned to it, it rises and reports to the assembly. The report is ordinarily made by the committee chairman, though any member may be authorized to make it. In many cases the report may be verbal, but where amendments to the measure are proposed it should always be in writing and be signed by the committeemen assenting. Dissenting members may make a "minority report."

A formal report generally begins, "Your committee to which was referred" (stating the matter committed), "having considered the same, respectfully beg leave to submit the following report;" follows with a succinct statement of the action or findings of the committee; and concludes, "All of which is respectfully submitted," etc.

Reception of Report. When the report of the committee is ready, the chairman of the committee or other person intrusted with the matter informs the society that the committee is ready to report; whereupon either he or some other member should move that the report be received. If there is no objection, the Chair will either state that the report will be immediately received or fix a time for its reception.

When the time arrives for the reception of the report, the person charged with making the report rises in his place, reads the report (unless it is of exceptional length), and hands it to the secretary. If the report is upon a matter submitted to the committee and contains proposed amendments, the latter are read, together with the paragraphs to which they respectively apply, and the reasons for the proposed amendments are stated. The report, having been delivered to the secretary, lies on the table until the society is ready to take it up.

A minority report or reports may be received after the report of the committee has been received; but the only action which can be taken with reference to it is to move that it be substituted for the latter.

Dissolution of Committee. Reception of the report of a select committee works a dissolution of the committee. The only manner in which the committee may be revived is by a motion to recommit. But the acceptance of a report "on progress" will not effect a dissolution.

Adoption of Report. There is no necessity for adopting a report which is merely explanatory of action taken by a committee, but where a report is intended to express the opinions of the society it should be either adopted or rejected. In ordinary cases a simple motion to adopt, the effect of which is to make the action of the committee in every respect that of the society, is sufficient. But where the members desire modifications, and amendments are offered, the report may be treated like any other question; that is, it may be amended or otherwise modified by any proper subsidiary motion.

AMENDMENTS

The object of amending a question is to put it in such shape that it will more nearly conform to the desires of the society; for without this power an assembly would be obliged to adopt one of two alternatives, either to reject a measure which was perhaps in most respects satisfactory, or to pass one which was in some respects objectionable.

The motion to amend may be applied not only to a main question, but also to all dependent motions or questions, except the following:

1. To adjourn (if unqualified).
2. For the orders of the day.
3. All incidental questions.
4. To lay on the table.
5. Previous question.
6. Amendment to amendment.
7. To postpone indefinitely.
8. To reconsider.

Amendment Must Be Germane. Members cannot take advantage of the

rules to introduce under the guise of an amendment an entirely different question, for this would be to admit a second main question to the floor while a former one is pending; nor is it admissible to change a question by merely striking out or inserting "not," for this would be to require two votes to determine one proposition. But this does not mean that the opponents of a measure may not resort to amendment to render a measure obnoxious to its friends. It is perfectly proper to amend a resolution so that it shall praise instead of censure, or condemn instead of approve.

Amendment to an Amendment. An amendment which is satisfactory in its general design but objectionable in some detail may itself be amended; but the process can go no further. An amendment to an amendment takes precedence of the latter and must be first voted upon. If voted down, a new amendment to the amendment is in order.

Order of Amendments. In amending a proposition it should first be read through in order that the members may understand it as a whole. It is then read a second time for the purpose of amendment. Unless a rule is adopted to the contrary, it may be amended in any part, and subsequent amendments may be made to any other part, whether previous or subsequent. And this is generally done where the instrument is short or is not formally subdivided; but where it is of considerable length and divided into paragraphs or sections, the second reading should be by such subdivisions, pausing after each for amendment. It is not proper to return to a previous paragraph to amend it, except by general consent. The preamble should be considered last of all.

One Amendment at a Time. Only one amendment can be made at a time, and this must be in some manner disposed of before another can be introduced. Two amendments to different parts of the main question cannot be pending at the same time.

Classes of Amendments. There are five general classes of amendments; namely, (1) amendment by insertion or addition, (2) by striking out, (3) by striking out and inserting, (4) by substituting one measure for another and (5) by dividing the question. Besides this, amendment is accomplished by filling blanks.

Amendment by Inserting or Adding. In moving to amend by inserting the words to be inserted, the place of insertion should be carefully specified. This is done by giving the number of the line where the insertion is to be made and the word after which it is to come, thus: "I move to insert the words 'and his expenses' after the word 'year' in the seventh line of the resolution."

Care must be exercised in moving to insert words; since if the motion is lost the same words, or words to the same effect, cannot be again proposed for insertion, though it is permissible to propose the same words with others if a substantially new proposition is presented. And if, on the other hand, the motion prevails, none of the words inserted can be subsequently stricken out, except only with others together with which they form a new proposition.

Amendment by Striking Out. This is the converse of the preceding form of amendment, and the form of making the motion is similar. It may be made as follows: "I move to strike out the words 'for his use' where they occur in the fifth line."

If the motion to strike out is voted down, it cannot be renewed as to the whole or part of the words to which it is related. But the words or a part of the words, with others, may be stricken out if it would constitute a substantially new proposition. If, on the contrary, the motion to strike out prevails, the words stricken out cannot be restored in whole or in part; though the same words with others, or a part of them with others, may be inserted if they constitute substantially a new proposition.

Striking Out and Inserting. This is a combination of the two preceding motions, and the effect of an affirmative or negative vote is largely governed by the same rules, though it is not so dangerous in the hands of a novice. The words to be inserted need not be inserted at the point at which words are stricken out, but may be inserted in other parts of the paragraph or resolution. The motion cannot be divided.

Substitution of Question. This is a form of the preceding mode of amending, in which a motion is made to strike out the whole resolution and substitute another. It possesses no difficulties.

Division of Question. A question may consist of more than one distinct proposition, in which case it may be divided so as to enable the society to vote on each proposition separately. But no matter how obvious the propriety of dividing a question, no member is entitled to the right of division. If anyone objects, the question can only be divided as the result of a motion and vote. Nor are all questions divisible. Unless the parts into which it is sought to divide the question constitute complete and proper questions in themselves, no division can be had.

Filling Blanks. Sometimes a paper is presented to a society with blanks to be filled. Filling blanks is a form of amendment, but the principles governing other amendments do not apply. Any number of members may propose, without a second, numbers to be inserted in the blank, and these are not treated as amendments of one another, but as independent propositions to be voted on separately, beginning with the largest sum and longest term and continuing until a majority is reached.

DEBATE

Debate is the discussion of a question before a society. Every member is entitled to participate in debate, except the presiding officer, providing he conducts himself in accordance with the rules governing debate. A question is open for debate from the moment the chair has stated the motion until the negative side of the question has been put to a vote. But no member is entitled to speak until he has risen and addressed the presiding officer by his proper title and the latter has "recognized" him by calling him by name.

Order of Debate. The member who proposed the question, or the member who presented the report of a committee where the question is on the reception or adoption of a report, is entitled to be first heard even though another member rises first. He is also entitled to close the debate. Each member is entitled to speak once upon the question generally, and after all who desire have spoken, a member may speak a second time, but the second speech should, strictly speaking, be confined to the explanation of statements made in the first speech. If no objection is raised, the member may, however, again speak generally.

Debate on Dependent Motions. If during the course of the debate on a question a motion is made to amend or to apply some other debatable motion to it, the question before the house is changed for the time being, and the debate shifts to such motion. Debate will be confined to the latter until it is disposed of, unless it is of such a nature as to require joint discussion with the main question. Thus debate will be confined to a pending amendment unless it is of such nature that a decision with regard to it would practically decide the main question; while the motions to commit, postpone indefinitely, rescind and to reconsider a debatable question open up the entire merits of the main question to debate.

Undebatable Questions. While most motions are debatable, there are certain classes of questions which parliamentary practice requires should be put without debate. Most questions of high privilege

are undebatable, since otherwise they could be used to prevent the society from coming to a vote on the main question. The following is a list of undebatable questions:

Fixing time to which to adjourn (if a dependent question).

To adjourn (or in committee, to rise).

For the orders of the day.

An appeal, if made while previous question is pending, or simply relating to decorum, debate or priority of business.

Objection to consideration of question.

To lay on the table.

To take from the table.

Previous question.

To reconsider an undebatable question.

Reading of papers.

Withdrawing a motion.

Suspending the rules.

Extending limits of debate.

Limiting or closing debate.

Decorum in Debate. A speaker is entitled to continue speaking so long as he complies with the rules of debate; except that he must temporarily take his seat when the president rises to state a point of order, give information or otherwise speak, or when called to order by some other member. But he must confine himself to the question before the house and avoid "personalities" and remarks reflecting on the past action of the society. He should also be careful to refer to all officers of the society by their title.

Objectionable words should be taken down as stated by the person objecting thereto, and be entered by the clerk in his minutes. If the speaker deny the words, a vote shall be taken to determine whether they were spoken, and if so found, the speaker should be called upon either to justify or explain his remarks or make a suitable apology. If he fails to do so, the speaker and the person concerning whom the words were spoken should be required to leave the hall while the society determines what punishment to impose.

Speaker Must Not Be Disturbed. A member having the floor, it is most reprehensible for others to disturb him by hissing, coughing, spitting, whispering, cat-calls, etc. Nor should members pass between the speaker and the presiding officer or walk about the hall without permission from the Chair. If a member persist in disorder after the Chair has repeatedly called for order, the Chair should "name" him. Whereupon the society may require him to withdraw while it considers what punishment to impose. Punishment may take the form of censure, reprimand or expulsion.

Yielding the Floor. A member yielding the floor for the benefit of the society is entitled to retake the floor as soon as debate is again in order. Thus, he may yield for a motion to adjourn or to take a recess, and will be entitled to the floor as soon as the question is reached after the society is next called to order. The floor may also be surrendered temporarily to permit the speaker's being questioned by another member, since a reply is implied. But where the floor is yielded for the mere private convenience of another member, to permit him to debate or make a motion in his own interest, it is considered as having been finally surrendered to the society.

Closing Debate. All members being entitled to speak on a measure and each having generally the right to continue speaking so long as he conducts himself properly, it is obvious that were no special means provided for abridging this right, societies would be placed completely at the mercy, not merely of the well-intentioned but garrulous, but also of the obstructionist who seeks to defeat the question by "talking it to death."

Debate may always be closed by the Previous Question. Another method is to adopt an order beforehand, *limiting debate* in reference to a subject, either as to the number or the length of the speeches, or providing for *closing debate*

at a certain time. The rules of order of legislative bodies generally make permanent provision as to limitation and closing of debate, but such provisions are not desirable in the rules of order of voluntary societies. If a question is undebatable it should be put to a vote as soon as it has been stated by the chair; if debatable it must be voted upon after the previous question has been adopted, the limit fixed for debate or the discussion exhausted.

VOTING

Ordinary Voting. Ordinary voting is by *acclamation* or by the *raising of hands*. The latter is the method generally pursued in secret societies and the former in other bodies. Here the Chair puts the affirmative in this form: "As many as are in favor say Aye," and then after the affirmative has been heard he adds, "As many as are opposed, say No." The result of the vote being determined by volume of voice, he declares the result.

Either the chair or any member, being in doubt, may call for a division.

Rising Vote. A division being called for, the Chair states, "As many as are in favor of (as the question may be) will rise and remain standing until they are counted." After all those in the affirmative have been counted, the Chair says, "The Ayes will be seated and the Noes will rise." Where the assembly is small the presiding officer himself counts the votes; but where the number is large it is customary for him to direct the secretary to count the votes of those on one side of the hall, or he may appoint tellers for the purpose.

Ballot. This method of voting is employed only where required by the constitution or by-laws, unless the society orders a vote to be so taken. Ballots take two forms: white and black *balls* used in secret societies in balloting or applications for membership, and *paper ballots* used in electing officers in all societies. In voting by the latter method the Chair appoints two or more tellers who prepare and distribute blank ballots, and afterwards collect and count the ballots and announce the result to the Chair. The Chair repeats the announcement to the society, in substantially the following language: "The total vote cast is ...; number necessary for election ...; Mr. X received ...; Mr. Y, ...; Mr. Z, ... Mr. Y, having received the required number of votes, is declared elected."

If there is but one candidate for an office, which the constitution declares must be filled by ballot, a vote authorizing the secretary to cast the ballot of the society for him is proper; though if anyone object, the balloting must be had in the ordinary way.

Yeas and Nays. The vote by yeas and nays was devised as a check on legislative bodies, to which it is practically confined. Where one-fifth of the members in one of the houses of Congress or of a state Legislature demand that the question be put to vote by *yeas* and *nays,* the Chair puts the question by stating, "As many as are in favor of the bill (or resolution) will, when their names are called, answer *yes;* those opposed will answer *no.*" The secretary is then directed to call the roll. As he does so, the members vote as directed and their action is recorded by the secretary.

Majority or Two-thirds Vote. Under general parliamentary law all questions may be decided by a bare majority vote. But the constitution, by-laws or rules of order of a society generally require a two-thirds vote for the following purposes:

(1) To suspend the rules of order.
(2) To make a special order.
(3) To amend the rules of order.
(4) To amend the by-laws.
(5) To object to the consideration of a question.
(6) To extend the limits of debate.
(7) To close or limit debate.

And quite often a two-thirds vote is required to lay on the table or to adopt the Previous Question.

Pluralities. A candidate for office is said to receive a plurality when he receives more votes for the position than any other person. Election by plurality is allowed in civil government, but not in deliberative assemblies except as provided by special rule. To prevent deadlocks it is wise to provide that after the third ballot, there being no majority, the person receiving a plurality shall be declared elected.

Reconsideration. It is not within the power of the defeated party to cause a question to be reconsidered. But a member who voted with the prevailing side, being satisfied that his action was ill advised, is at liberty to make the motion, which may be seconded by any member. The motion must be made on the same day or the day following that on which the question to be reconsidered was voted upon. It may be made even while a member is speaking in debate, but in such case the secretary makes a note of the motion and the debate is continued. The motion then comes up for consider-

READY REFERENCE RULES

Explanatory Note:—An asterisk placed opposite a motion shows that the rule at the head of the column applies; a blank shows that the opposite is true. (2) Debatable to limited extent. (3) Debatable under certain circumstances. (4) Affirmative vote cannot be reconsidered. (5) Majority sufficient, but may be advisable for rules of society to require two-thirds vote. (6) If debatable, opens main question to debate. (7) May be made and entered on record, but not voted on.	Undebatable.	Opens main question to debate.	Not amendable.	Cannot be reconsidered.	Should require two-thirds vote.	No second required	May interrupt debate
Adjourned	*		*	*			
Adjourn, Fix time to which to	2						
Amend							
Amend an Amendment			*				
Amend the Rules					*		
Appeal	3		*				*
Call to Order	*		*			*	*
Close Debate, Motion to	*				*		
Commit (or Refer)		*					
Extend Limits of Debate	*				*		
Fix time to which to adjourn	2						
Lay on the table	*		*	4	5		
Limit debate	*				*		
Objection to consideration of question	*		*		*	*	*
Orders of the day, Motion for	*		*			*	*
Permission to continue speaking after indecorum	*		*				
Postponement to time certain	2						
Postpone indefinitely		*	*				
Previous question	*		*		5		
Priority of business, Question as to	*						
Privilege, Question of							
Reading of papers	*		*				
Recommit		*					
Reconsider	3	6	*	*			7
Refer (See Commit)		*					
Rescind		*					
Rise (in committee, equivalent of adjourn)	*		*	*			
Special order, To make measure a					*		
Suspend the rules	*		*	*	*		
Take from the table	*		*	4			
Withdrawal of motion	*		*				

ation when there is no business before the house, when it takes precedence of the motion to adjourn or to fix the time to which to adjourn.

The motion to reconsider may be applied to most dependent motions, but not to the motions to adjourn, to suspend the rules or to lay on or take from the table, because they are motions which may be renewed. Nor can a vote be reconsidered after it has influenced subsequent action; as a motion to commit, after the committee has taken the papers and entered upon its duties; or the previous question, after it has been partly executed. Appeals, also, are not subject to reconsideration.

A vote cannot be twice reconsidered. The motion to reconsider cannot be amended, and is debatable or not, according as the question to be reconsidered is or is not debatable.

A LITERARY SOCIETY

Temporary Organization. A number of ladies anxious to organize a literary club in the city of Aurelia issue a call, addressed to some 30 ladies of the place, who are invited to meet for that purpose at the home of Mrs. Scott on Monday, Aug. 19, at 8:00 p. m. The ladies having assembled at the hour appointed and having waited until satisfied that all who contemplate attending have arrived, one of them, Mrs. Adams, rises and says: "The meeting will now come to order. As you are all doubtless aware, this meeting has been called to organize a literary club in our midst to cultivate the literary taste and increase sociability. Will someone please nominate a temporary chairman?"

Mrs. Clark (rising and addressing Mrs. Adams): "I nominate Mrs. Hazlitt as chairman." She seats herself and Miss Poole rises to say: "I second the nomination."

Mrs. Adams: Mrs. Hazlitt has been nominated as temporary chairman. Are there any other nominations? (Hearing none.) All those in favor of Mrs. Hazlitt acting as chairman will say "Aye." (Several respond Aye.) Those opposed, "No." (No response.) The Ayes have it. Mrs. Hazlitt is elected temporary chairman, and will please take the chair. (Mrs. Adams or some other person provides a chair facing the ladies assembled, with a table before it.)

Mrs. Hazlitt takes her position behind the table, raps if necessary to restore order, and says: "The first business in order is the selection of a clerk. Do I hear a nomination?" She remains standing. Mrs. Dale, rising: "Mrs. Chairman." (This constitutes "addressing the Chair.") The Chair responds: "Mrs. Dale." (This is called "recognition" and entitles the one recognized to the floor.)

Mrs. Dale (having the floor, proceeds): I nominate Miss Poole for temporary clerk.

The Chair: Miss Poole has been nominated for clerk. Does the nomination meet with a second? (A voice) "Second the nomination."

Miss Davenport (rising): Mrs. Chairman, I rise to a point of order.

The Chair: State the point, Miss Davenport.

Miss Davenport: The nomination was not properly seconded. The member neither rose nor addressed the Chair.

The Chair: The point is not well taken. It is neither necessary to rise nor to address the Chair in seconding, as appears from the customary phrase, "Do I hear a second?" (Resuming) Are there any other nominations?

There being no response the Chair puts the nomination to vote, and Miss Poole, having been elected clerk, takes her seat at the table beside the chairman and, being provided with writing material, proceeds to take down the subsequent proceedings.

Mrs. Adams: I move the adoption of the following resolution: *"Resolved*, that a literary club be organized in this city, to be known as The Ladies' Literary Club of Aurelia."

Mrs. Brown (rising): I second the motion.

The Chair: You have heard the resolution. It is moved and seconded that

it be adopted. Are you ready for the question?

Permanent Organization. The resolution passing without opposition, the clerk will state: "It being the sense of the meeting that a ladies' literary club be organized, the next thing in order will be the appointment of a committee to draft a constitution and by-laws. Will someone make a motion to that effect?"

Mrs. Clark: I move that a committee of three be named to draft a constitution and by-laws. (Motion stated, discussed, put to a vote and carried.)

The Chair: The motion makes no provision for the manner of choosing the committee. How shall the committee be chosen?

Miss Davenport: I move that the committee be nominated from the floor. (The motion is seconded.)

The Chair: It has been moved and seconded that the committee be nominated from the floor. Are there any remarks?

Mrs. Adams (rising to debate the question, and having been duly recognized): It seems to me that is hardly necessary. It would take up considerable time and we can surely trust the Chair to make a wise selection.

Miss Davenport: In making the motion I had no intention of reflecting on the Chair; but it appears to me a matter of such importance that general action by the members is advisable.

Mrs. Clark: I think the first speaker is right. The committee had best be appointed by the Chair.

The Chair: Are there any further remarks? (Hearing none.) All in favor of the motion as put, namely, that the committee be nominated from the floor, say "Aye." All opposed say "No." The Noes have it, the motion is lost.

A motion was then made and carried that the committee be appointed by the Chair.

The Chair: The Chair will appoint as such committee, Mrs. Edwards, Mrs. Blake and Miss Smith. It will, of course, require some little time for the committee to draft a suitable constitution. The Chair would suggest that an adjournment be taken until next Wednesday evening at eight o'clock, to await the report of the committee, and that, if our hostess has no objections, we reassemble at this place.

The Hostess: I am sure I shall be glad to be of whatever assistance I can in the organization of the club. The ladies are more than welcome to use the house.

The Chair: Then if there is no further business the motion to adjourn is in order.

Mrs. Blake (rising): Mrs. Chairman, I move that we adjourn to meet at this place next Wednesday evening at eight o'clock.

Miss Davenport: I second the motion.

The Chair: You have heard the motion for adjournment. As the motion states the time and place for reconvening, it is not privileged and is debatable. It may be that a different time would be more convenient for some. Are there any remarks? (No response.)

The Chair (rising): All in favor of adjourning, say "Aye." Those opposed, "No." The Ayes have it and the meeting stands adjourned to meet at this place next Wednesday evening at eight o'clock.

Committee Meeting. Before the gathering dispersed the members of the committee got together and agreed to meet at the home of Mrs. Blake the following evening, Miss Smith agreeing to prepare a draft of the constitution in the meantime.

They met the next evening as agreed, and, being seated, Mrs. Edwards said: "I suppose our first duty is to select a chairman."

Mrs. Blake: I hardly think that is necessary. Having been appointed first on the committee, you are its chairman until the committee sees fit to elect another. I think there is no need of that.

Chairman: But at least we shall need a clerk. Who will you have for clerk?

Mrs. Blake: I nominate Miss Smith.

Chairman: Miss Smith is nominated. Those in favor make it manifest by raising the right hand. (The chairman and Mrs. Blake raise their hands.) Miss Smith is elected.

Chairman: Has our clerk with her the draft of a constitution and by-laws which she so kindly offered to prepare? (Clerk produces draft.) Ah! That is very kind. I would suggest that the draft be first read through as a whole. (The draft is read.) The draft will now be read section by section. Amendments may be made to each section as read, so that at the conclusion it may be adopted as a whole.

The draft of the constitution is then read by sections, discussed informally, and various sections amended. The draft of the by-laws is treated in the same manner.

Mrs. Blake: I move that the proposed constitution and by-laws as amended be reported favorably to the club and that the chairman be instructed to present the report.

Clerk: I second the motion.

Chairman: It is moved that the chair present the report. Are you ready for the question? Those in favor will say "Aye." Opposed, "No." The motion is carried. If there is no further business the committee will now rise. (No one objecting.) It is so ordered.

Regular Organization. Note: The chairman should rise to put the question, but he may state motions sitting. A member should address the chair and secure recognition before speaking, except in seconding a motion. Hereafter it will be assumed that all conform to the rule, unless otherwise stated.

The Chair (rapping): The meeting will please come to order. The first business in order will be the reading and approval of the minutes of the former meeting. (The clerk rises and reads the minutes.) Is there any objection to the minutes as read?

Miss Davenport: Mrs. Chairman, I note one error. The minutes state that adjournment was taken to 7:30 p. m. The adjournment was to 8:00 p. m.

The Chair: If there is no objection the minutes will be corrected accordingly. Are there any further objections? If not, the minutes will stand approved with the correction as indicated.

Mrs. Edwards: Mrs. Chairman, your committee on constitution and by-laws is ready to report.

The Chair: Ladies, will you receive the report?

Miss Smith: Mrs. Chairman, I move that the report be received. (Seconded.)

The Chair: It has been moved and seconded that the report be received. Are there any remarks? Those in favor will say "Aye." Those opposed, "No." The motion is carried and the report is in order.

Mrs. Edwards: Your committee appointed at the preliminary meeting to report a constitution and by-laws would respectfully submit the following for your consideration. (Reads the proposed constitution and by-laws.)

The Chair: Ladies, what will you do with the report?

Miss Davenport: Mrs. Chairman, I move its adoption. (Seconded.)

The Chair: It is moved and seconded that the report be adopted. Are you ready for the question?

Mrs. Scott: Mrs. Chairman, it appears to me the constitution needs some further correction before we adopt it. I am therefore opposed to adopting the report until we have gone over it section by section.

Miss Davenport: Mrs. Chairman, I think the suggestion a good one and with the consent of the club will withdraw my motion.

The Chair: If there is no objection the motion to adopt the report may be withdrawn.

Mrs. Scott: I move to take the report up *seriatum*. (Seconded.)

The Chair: It is moved that the report be taken up *seriatum*, that is, section by section. Are there any remarks? All in favor of the motion will say "Aye." Opposed, "No." The motion

is carried. The clerk will read the first section of Article I. (The section is read.)

Mrs. Scott: I move to amend by inserting the words "and Social" after the word "literary" in the second line. (Seconded.)

The Chair: It has been moved and seconded that the words "and Social" shall be inserted after the word "literary" in the section, so that it shall read "This Society shall be called the Ladies' Literary and Social Club of Aurelia." (Motion discussed, put and carried.)

In the same manner the constitution is read section by section to the end and various sections amended. The by-laws are treated in the same manner.

Miss Davenport: I move the adoption of the constitution as amended. (Seconded, put and carried.)

The Chair: Now that a constitution has been adopted it will be necessary for all those to sign it who wish to become members. A motion to take a recess for that purpose is in order.

Mrs. Scott: I move that a recess of ten minutes be taken to afford an opportunity for signing the constitution. (Seconded.)

The Chair: You have heard the motion. Are you ready for the question? All in favor of the motion will say "Aye." The contrary, "No." The Ayes have it. We will take a recess while the constitution is being signed. After all have signed, the Chair raps for order and announces the adoption of by-laws as the next business in order. They are disposed of in the same manner as the constitution, except that it is not necessary to sign them. A committee may have been appointed at the first meeting to nominate a list of permanent officers. If not, the committee is on motion appointed at this stage of the proceedings, and it retires and prepares a list.

When the Chair calls for the report of the nominating committee, its chairman rises and says: "Mrs. Chairman, your commitee on nominations has the honor to report as follows: For president, Mrs. N. D.; for vice-president, Mrs. V. D.; for secretary, Mrs. C. S.; for treasurer, Miss N. P.; etc." (Hands list to Chair and takes seat.)

Miss Smith: Mrs. Chairman, I move that the report of the committee be adopted.

The Chair: The motion is not in order. Such a report cannot be adopted. The effect of an adoption would be to make the persons nominated the officers of the club, while the constitution requires that all officers shall be elected by ballot.

The Chair: You have heard the report of the committee on nominations. What is the further pleasure of the club?

Mrs. Adams: While the selection made by the committee is satisfactory in most respects, our present clerk has performed the duties of her office in so commendable a manner that I think she should be retained as secretary. I therefore nominate Miss Poole for permanent secretary.

The Chair: Miss Poole is added to the list of those nominated for secretary. Are there any further nominations? (After a pause.) What is the further pleasure of the club?

Miss Davenport: I move that the club now proceed to the election of permanent officers.

The Chair: Do I hear a second? (Motion seconded.)

It is moved and seconded that we proceed to the election of permanent officers. Are you ready for the question? All in favor of the motion will say "Aye." Opposed, "No." It is a vote.

I will appoint as tellers Miss Smith and Miss Dickens. They will prepare blank ballots and distribute them among the members. (An interval.) Members will prepare their ballots for president. (Each writes his choice on a blank.) The tellers will collect the ballots and announce the result.

Tellers collect ballots and return to clerk's table, where they are counted with the assistance of the clerk and the result announced to the chairman, who announces the result to the club. (See paragraph on "Ballot" above.)

The Chair: Mrs. Darrow, having been elected president, will please take the chair as presiding officer of the club. (Two members escort her to the chair.)

President: We will next proceed to the election of a vice-president.

The vice-president and other officers are elected in the same manner as the president.

Amendments. At a meeting of the club at the first regular meeting in October, the following motion was put: *"Resolved,* that the secretary of the club be instructed as follows:

1st. To make arrangements for the renting of a hall for the use of this club.

2nd. To provide for such hall proper seats at a cost not exceeding two hundred dollars, and

3rd. To purchase insignia for the officers of the club at a cost not exceeding seventy-five dollars."

Mrs. Scott: I move to amend by striking out the words "this club" in the second line and inserting in lieu thereof the words "the public."

President: The motion is not in order. The proposed amendment is not germane to the subject of the resolution.

Miss Smith: I move to amend the second paragraph by inserting after the word "seats" the words "and other furniture."

President: It has been moved to insert the words "and other furniture" after the word "seats" in the second paragraph. Are you ready for the question? (Cries of "Question, Question.") (Motion put and carried.)

Mrs. Adams: I move that the word "two" be stricken from the second paragraph and the word "three" inserted in lieu of it. (Put and carried.)

Mrs. Dale: I move the substitution of the following for the third paragraph, namely, "3rd, To ascertain the cost of suitable regalia for the officers and members of the club, and report." (Stated, put and carried.)

Mrs. Dale: I think the furniture should not cost more than the original figure, and I therefore also move that the word "three" in paragraph two of the resolution be stricken out and the word "two" inserted instead.

President: The motion is out of order. It is not in order to strike out the exact words which have been inserted nor to insert the exact words which have been stricken out, both of which things are attempted in this motion.

Are there any further amendments proposed? If not, the question is on the resolution as amended. The secretary will please read the resolution as amended. (Secretary reads.) Are you ready for the question? (Question put and carried.)

Commitment and Postponement. Mrs. Dale: Mrs. President.

President: Mrs. Dale.

Mrs. Dale: I move the adoption of the following resolution: Resolved, that the secretary be instructed to purchase for the club library complete sets of the leading English and American poets, essayists and novelists, not to exceed one hundred volumes, bound in cloth, price not to exceed $150.

Mrs. Smith: I second the motion.

President: The question is on the adoption of the resolution.

Miss Davenport: I move that the question be postponed indefinitely. (Seconded.)

President: It is moved and seconded that the question be suppressed.

Mrs. Scott: I move to amend the resolution by striking out the words "one hundred volumes" and inserting in lieu thereof the words "twelve authors."

President: It is moved to amend the resolution by striking out the words "one hundred volumes" and inserting "twelve authors."

Mrs. Adams: I move to amend the amendment by striking out "twelve" and inserting "fourteen."

Miss Davenport: I move that the resolution be referred to a committee of seven, to be appointed by the chair.

President: It is moved to refer the resolution to a committee of seven appointed by the chair.

Mrs. Masters: I move to amend so as to make the committee consist of five.

Mrs. Hazlitt: I move that the committee be instructed to communicate with Chicago houses as to prices.

President: The motion not in order. The matter of instructions must be left until after the matter of referring to a committee is decided.

Miss Smith: I move that the question of referring to a committee be postponed for one week.

President: It is moved to postpone for one week the motion to commit. The motion to postpone cannot be applied to the motion to commit alone, but extends to the main question. If carried, it postpones the main question. Are you ready for the question? All in favor will make it manifest by saying "Aye." Opposed, "No." The motion is lost. The next question in order is: Shall the resolution be referred to a committee? Are you ready for the question? All in favor of the motion will say "Aye." Those opposed will say "No." It is carried.

Next as to the number of committeemen. Seven and three have been proposed. We will first vote on the largest number. (First vote fails, and second vote for committee of three is carried.) The members of the committee will be named by the chair at a later time. A motion to instruct the committee is now in order.

Mrs. Hazlitt: I move that the committee be instructed to take up the matter of prices with Chicago publishers.

President: It is moved that the committee be instructed to confer with Chicago publishers on prices.

Mrs. Scott: I move to amend by adding the words "ascertaining prices for calf and half-calf as well as for cloth binding."

President: It is moved to amend so as to require the committee to ascertain the cost of calf and half-calf bindings.

Mrs. Adams: I move to amend the amendment so as to require the committee to report at our next meeting.

President: It is moved to amend the amendment by adding the words "and to report at our next meeting." Are you ready to vote? Those who favor the amendment to the amendment will signify by saying "Aye." Contrary, "No." It is carried. The question is now on the proposed amendment as amended. (Put and carried.)

The question is now on the adoption of the proposed instructions as amended. Are there any remarks? All in favor will say "Aye." Those opposed, "No." The motion is lost. The Chair will appoint as the committee Miss Davenport, Mrs. Scott and Miss Smith.

Mrs. Dale: I fail to see the necessity of appointing a committee when the resolution is lost.

President: The resolution is not lost. It was the motion to instruct the committee which was defeated.

Previous Question. Mrs. Hazlitt: Mrs. President, I move that a committee of three be appointed by the Chair to catalogue the library under instructions from the club, or, in the absence of such instructions, in accordance with their own judgment.

President: It is moved that a committee of three be appointed to catalogue the library under instructions from the club, or, in the absence of such instructions, in accordance with their own judgment.

Mrs. Dale: I move to amend by striking out all the words following the word "club."

President: It is moved to amend by striking out all the words following the word "club." Are there any remarks?

Miss Smith: I move that the matter be referred to a committee of five, to report at our next meeting.

You have heard the motion to submit the matter to a committee of five to report at our next meeting. Are there any remarks?

Mrs. Hazlitt: I move the Previous Question.

President: The Previous Question has been moved and seconded. The question is, shall debate be now closed?

Mrs. Dale: I wish to speak briefly on the question before it is put to a vote.

President: The member is out of order. No debate is permissible while the Previous Question is pending. All in favor of the closing of debate will make it manifest. All opposed. It is not a vote; the motion for the Previous Question being lost, the motion to refer to a committee is open to debate.

Debate on Motion to Commit. President: Ladies, are you ready for the question? (Cries of "Question, Question.") As many as are in favor of referring the motion to a committee will say "Aye." Those opposed will say "No." The motion is lost.

Mrs. Hazlitt: I call for the previous question on the motion to amend, which I believe is now in order. (Seconded.)

President: The previous question is moved. Shall the main question be now put? Those in favor will say "Aye." Opposed, "No." The Ayes have it. The previous question is ordered. All in favor of striking out that part of the motion following the word "club" will say "Aye." Those opposed, "No." The motion is carried. The question now recurs upon the original motion as amended, that is, with the portion following the word "club" omitted. The proposition is now open for discussion.

Mrs. Dale: Mrs. President. Until our library is much more extensive than it is at present, I think it would be useless to—

Mrs. Hazlitt: Mrs. President, I rise to a point of order.

President: The member will please state the point.

Mrs. Hazlitt: The question is not open to debate. The Previous Question is still pending.

President: The point is not well taken. The member in moving the Previous Question restricted her motion to the amendment. In such case, the Previous Question, if allowed, is exhausted on the amendment. The debate may continue.

Mrs. Scott: It is getting late, and we have considerable other business to dispose of; I therefore move that debate on the pending motion shall close at ten o'clock.

President: It is moved and seconded that debate close at ten o'clock. All who favor the motion will say "Aye." Opposed, "No." The motion is carried. Debate may continue until ten, when the question will be put.

Reconsideration. At the club's first meeting in September it was decided to give a "Lowell" program on the last Wednesday in October. At the second regular meeting in September, Mrs. Dale, who thinks the plan inconsiderate, moves to reconsider.

Mrs. Dale: Mrs. President. I move a reconsideration of the action of the club at our last meeting, relative to the giving of a "Lowell" program.

President: Only one who voted with the prevailing side may move for reconsideration; how was your vote cast?

Mrs. Dale: I voted with the prevailing side.

President: A motion is made to reconsider. Does it meet with a second? (Seconded.) Are you ready? (Limited debate on advisability of reopening question.) As many as favor reconsideration will say "Aye." Those opposed, "No." It is carried. The vote is reconsidered and the question is again before you for discussion.

Questions of Order. Mrs. Adams: Mrs. President. I move that a dance be given three weeks from tonight to raise funds for the benefit of the club.

President: It is moved that a dance be given three weeks from tonight for the benefit of this club.

Mrs. Hazlitt: I move that the consideration of the measure be postponed for two weeks.

President: It is moved to postpone for two weeks. Are you ready?

Mrs. Scott: I move that the matter be referred to a committee of—

Miss Smith: Mrs. President, I rise to a point of order. The motion to commit is not in order, since the motion to postpone is pending.

President: The point is well taken. The motion to commit is not in order. Are you ready to vote on the motion to postpone? (Motion put; lost.)

Mrs. Scott: I renew my motion to refer the matter to a committee consisting of the president, vice-president and secretary.

President: You hear the motion. What will you do with it?

Miss Smith: (without rising): I see no reason why the club cannot pass on the matter itself.

Miss Davenport: Mrs. President, I rise to a question of order.

President: Will Miss Davenport please state her question?

Miss Davenport: The point I wish to make is that the last speaker did not rise to address the Chair.

President: The point is well taken. A member should always rise to address the Chair.

Miss Smith (rising): I stand corrected. I am opposed to a committee of the composition indicated. I think the whole club should participate in getting up the dance.

Mrs. Scott } (rising at once): Mrs.
Mrs. Hazlitt } President.

President: Mrs. Scott.

Mrs. Dale: I rise to a point of order.

President: State your point of order, please.

Mrs. Dale: Mrs. Hazlitt rose before Mrs. Scott.

President: The Chair saw both members arise and they rose at the same time. The Chair recognized Mrs. Scott and will abide by its decision.

BIBLIOGRAPHY

The standard manuals of parliamentary law are Roberts' *Rules of Order,* Reed's *Rules* and Cushing's *Manual.* They are in universal use and may be obtained in any bookstore. Other manuals suitable for use in ordinary societies are: Bartlett's *Handy Book of Parliamentary Law* (New York—T. Y. Crowell & Co.); Crocker's *Principles of Procedure;* Fish's *Manual;* Hackett's *Gavel and Mace;* and Scanlan's *Rules of Order.*

Manuals designed especially for ladies' clubs: Fox's *Parliamentary Usage* (New York—Baker & Taylor Co.); Hollister's *Manual;* Paul's *Parliamentary Law* (New York—The Century Co.); Prichard's *Parliamentary Usage for Women's Clubs;* Shattuck's *Manual;* and Macy's *Club Woman's Friend.*

The special needs of religious societies are provided for in Mell's *Manual of Parliamentary Practice* (Louisville, Ky. —Baptist Book Concern).

More extended works covering the law in England and America: Erskine's *Treatise* (London—Clowes & Sons); Hind's *Precedents* (Washington—Government Printing Office); Jefferson's *Manual;* McKee's *Manual of Congressional Practice;* and Redlich's *Procedure of the House of Commons* (London—Constable & Co.). Reed's *Rules* are also very full with regard to legislative practice.

I want to refer to the importance in this day of giving our teachers and of having them communicate to their pupils the proper sense of the responsibility of citizenship in this country. It is not enough to have patriotic songs sung * * * Study of civics, the knowledge of the actual operation of our government, is most important. —*Justice Hughes.*

COMMERCIAL LAW

INTRODUCTION

Need of Legal Knowledge

An apology for the inclusion of a chapter on business law in this course of studies is scarcely necessary, for nothing is more essential to business success than a knowledge of those rules which underlie commercial transactions, prescribe the necessary formalities and define the rights and obligations of public intercourse. Ignorance of the law and the consesquent blunders and mistakes, will, at the very least, lead to loss of repute and diminish credit. But this is the least of its evils. It exposes one to the intrigues of the unscrupulous, the confidence man, to use a homely expression—the fellow who has an ax to grind. It is unfortunate, but alas too true, that, as our civilization has increased in complexity, the number of those who make of the law a shield to cover their dishonest purposes and a sword whereby to strike down the unwary, has also increased. We venture the assertion that there is not a reader of these pages who cannot recall a friend or acquaintance who has been undone because of his or her ignorance of the law. And even if this were not so, the vast amount of money annually expended in useless litigation forms a sufficient reason why everyone should make it a point to acquire that minimum of knowledge which will enable him to avoid the "pitfalls of the law."

Reasons for General Ignorance

When we consider the importance of a knowledge of law to success in business, the great advance in general intelligence and the increased facilities for acquiring a knowledge of the subject, the prevailing ignorance of legal principles is astounding. But if we look a little closer the reason is apparent.

The average man imagines the law to be what it seems, a refined system of quibbling, a bottomless slough of chicanery. To him the law consists of barbarous Latin and more barbarous French; of the court slang of lawyers and judge, which he fails to see is merely assumed, consciously or unconsciously, to impress the laity; and of the hundreds upon hundreds of law reports. He is blissfully ignorant that the latter consist for the most part of endless repetitions of the same principles. He sees but the vestments of the law and not the law itself; and he imagines it to be infinitely complex.

Simplicity of the Law

Know then, dear reader, that the matter in hand, business law, when divested of all its trappings, is infinitely simple, so simple as to be within the grasp of everyone. It is not even a science, as it is sometimes called, but is merely the application of reason to the ordinary affairs of business life. It is in this light that we shall endeavor to treat it in the following pages, stating the principal rules of law governing everyday business transactions, and following in each case with the reason for the rule. This will serve to impress the rule upon the mind.

Definition and Field of Law

Law is defined as a rule of action to which something or someone is amenable. Philosophers anciently disputed as to whether or not there were cases where there was no law, and chance ruled supreme; but it is now generally admitted that the reign of law, whether in the material or the spiritual sphere, is universal. Thus we have, in an ascending scale, physical, biological, social and

moral law. But these are not forms of law of which a court of justice will take cognizance. Even in case of a breach of the moral law or the social law, the remedy must be sought in the "forum of conscience," or of society, as the case may be.

Yet another set of rules, known as international law, governs sovereign states in their intercourse. In their relations with one another states are presumed to conduct themselves as moral beings; but, as sovereign states acknowledge no superiors, courts cannot originally sit in judgment upon breaches of international law, which is binding only upon the "conscience of nations."

There are other systems of law which are binding only upon those who voluntarily submit thereto. Such are maritime law, military law, ecclesiastical law and parliamentary law, which govern mariners, soldiers, churches and assemblies. Our field has now narrowed down to

Municipal Law

Municipal law is that body of rules promulgated by the supreme power in a state directing that which shall be done and prohibiting those things which are not deemed proper. It is that law which is administered by the public officers and courts of the land, and it constitutes, in the thought of the average man, the whole of "the law."

The municipal law consists of four general heads: (1) constitutional law, (2) administrative law, (3) criminal law and (4) private law.

Constitutional law includes those fundamental rules which fix the relations of the different departments of government, establish the spheres of central and local government and prescribe the rights of citizens.

Administrative law consists of those rules enacted by the legislatures, prescribing the powers and duties of public officers, the methods of conducting elections, the raising of taxes and, generally, the conduct of all matters of a public nature. Constitutional and administrative law together constitute "civics," which is treated elsewhere.

The criminal law consists of rules prohibiting the commission of acts inimical to the welfare of society, and providing penalties for the breach thereof. In barbarous conditions of society it constituted the major part of the law, but with the growth of intelligence and morality it affects a progressively decreasing portion of the community. This brings us to private law.

Private law, as the name indicates, is that portion of the municipal or national law which regulates private individuals in their intercourse with one another. As this intercourse is, from the legal point of view, practically confined to questions involving property, contracts and trusts (other matters being relegated to the social and moral spheres), the field of private law is practically conterminous with a study of persons, property, contracts, trusts and court practice. A sixth branch of private law deals with *torts*, or private wrongs not arising from breach of contract, such as slander, seduction, trespass and assault.

Field of Business Law

Business or commercial law is not logically a separate branch of law. It is merely the study of those more general principles of private law, a knowledge of which is most useful in connection with ordinary business transactions. It is not concerned with trusts, torts and court procedure, for these are not matters of everyday occurrence with the business man, but it includes most, though not all, of the law of contracts and property, and much of the law of persons.

Divisions of the Subject

For convenience of study and reference the subject is divided into eight parts or units, as follows: Part One, Contracts; Part Two, Agency; Part Three, Negotiable Instruments; Part Four, Sales of Personal Property; Part Five, Bailments; Part Six, Partnership;

Part Seven, Corporations; Part Eight, Real Property. Each part is divided into general divisions and each division into subdivisions, so that the reader may have no trouble in finding at a glance the particular topic he desires. The division into topics also enables the reader to learn at a glance the relation of the topic he is reading to the unit in which it occurs.

PART ONE

CONTRACTS

Definition and Elements

Many definitions of contract have been framed, none of which is satisfactory; but perhaps the clearest statement is that a contract is an agreement entered into in the course of business which creates a binding obligation. There are many agreements besides business agreements. For instance, a man may agree not to reveal a matter within his knowledge which would tend to bring another into ill repute. Such an agreement is not in the course of business, is not a contract and is enforceable only in the forum of conscience. Or if a gentleman agree to take a lady to the theater, and then break his word, she has no remedy. This is a social and not a business matter, and the penalty he must pay, if any, is social ostracism or a "cut," not legal damages.

Nor are all business agreements enforceable, for to constitute a contract the agreement must possess the following elements: (1) It must be made by competent parties; (2) there must be an offer by one party and an acceptance by the other; (3) real assent; (4) the object must be legal; and (5) there must be either a consideration, or a certain form observed. Let us take these elements up in order.

PARTIES

Since the effect of entering into a contract is to bind the parties to the performance of its terms and to the payment of damages for failure to do so, it would not do to permit everyone to enter into contracts. Hence the law casts the mantle of protection about minors, insane persons and drunkards. Minors and insane persons may make binding contracts only as to necessaries; that is, food and lodging, clothing, medicine and medical services and schooling. These are necessaries only as they are commensurate with the person's station in life, and, even though necessaries, no more can be recovered for them than their *reasonable value,* irrespective of what the minor or insane person promised to pay; if the minor is already supplied with sufficient necessaries, no article which may be supplied will be considered a necessary.

Ratification by Incompetent Party

Contracts other than those for necessaries are not binding upon the incompetent party (though they are on the other party), who may disaffirm them at any time, either before or after attaining majority or recovering his reason. But until disaffirmed the contract is not void, but merely voidable; it may be ratified upon the incompetent person's becoming competent to contract. In disaffirming a contract the incompetent person must return the money or other benefits received under it, if still under his control; but if he has squandered them, he may nevertheless disaffirm.

According to common law married women could not contract, but this disability has been removed by statute in most cases. In many states, however, the power of husband and wife to make binding contracts with each other is denied. Minors and insane persons are favored by the law, but not drunkards. And so a drunken person may be held upon his contract unless the intoxication

was of such degree as to drown memory, judgment and reason, or was induced by the other party as part of a scheme to defraud.

OFFER TO CONTRACT

Given competent parties, a contract springs into existence where one party makes an offer with intent to be legally bound, which the other party duly accepts with like intent; for there must be "a meeting of the minds" of parties. The offer must be definite in its terms, for an acceptance cannot be predicated upon generalities. Suppose, for instance, A says, "I will sell you my farm." Here there are no definite terms; nothing to fix the price. There is nothing which can be definitely accepted. But if I offer to sell and deliver 50 bushels of potatoes at a certain place, this may be accepted, for it will be presumed that the market price was intended as a part of the offer.

The offer must not only be definite, but it must be made in earnest. The law will not enforce an offer made in jest. If Smith were to offer Brown $1000 for an ordinary yellow dog, Brown could not by accepting bind Smith.

Interval Between Offer and Acceptance

If immediately upon the making of the offer the other party accepts, the contract is complete—the parties are bound with "the chain of the law." But more often acceptance is delayed. The offer fixes a definite time for acceptance, in which case it may be accepted any time within such period; or no time is fixed, when a reasonable time to accept is understood. But this rule is subject to the condition that the offer may be withdrawn at any time before acceptance.

Promise to Keep Offer Open

Though the person making an offer has promised to keep it open a certain time, he is not bound by the promise, except as hereafter stated, for it would be unjust to hold him so long as the other party is not bound, which he is not until he accepts. If, however, the parties have *contracted* that the offer shall remain open a certain time, the offeror cannot withdraw the offer. Such a case arises where the offeror agrees to keep the offer open in consideration of a certain sum, which is paid by the other party. Such a contract is called an option contract.

ACCEPTANCE

The acceptance must be unqualified and identical in terms with the offer. Suppose A offers to sell his horse to B for $100 in cash, and B replies that he will give his note for $100, payable in 30 days. This is no acceptance, but is in reality a new offer, which, if A accepts, becomes binding. But if he does not accept, B cannot conclude a contract by accepting the original offer. His counter-offer was, in legal effect, a rejection thereof.

Acceptance may be by mere assent to the terms of the offer, or by the doing of an act which the offeror has promised to reward; but in either case the acceptance must be brought to the knowledge of the offeror; otherwise he is not bound.

In ancient times all acceptances were made by word of mouth, but today the offer is often made by mail or telegraph, and the acceptance made in the same manner. This complicates matters somewhat. Is an offer accepted when a letter or telegram is posted or delivered to the telegraph company, or when it is received by the offeror? There must be a rule somewhere, and so the law holds that the postal department or express company is the agent of the offeror and the acceptance dates from the moment of delivery of the acceptance to either of such agencies. If, after such delivery, the party changes his mind and attempts to serve notice of rejection, he is too late. For instance, if B posts a letter accepting A's offer, and then relenting sends a telegram rejecting the offer, though the telegram reach A before the letter, B is nevertheless bound.

REALITY OF ASSENT

Where a definite offer has been duly accepted a contract arises. But it is not necessarily binding. To make it so the assent to its terms must be real, not merely formal. That is, the minds of the parties must meet not only in appearance, but in fact. Mistake on the part of both parties, or the fraud, misrepresentation, duress or undue influence of one party, may be such as to render the offer and acceptance a mere sham. In the following paragraphs we will consider these vitiating elements in detail.

Mistake

Mutual mistake of the parties as to essential matters renders the contract void. Suppose, for instance, A offers to sell B his ox "Buck" for $50. B accepts, but it apears that A had two oxen of that name, and that he meant one while B intended the other. There is no contract, for the minds of the parties did not meet.

Again, suppose a man offers to sell another a horse which at the time, unknown to either party, is dead. There is no contract, for the subject matter with regard to which they purpose to treat is not in existence.

But where one party is mistaken as to certain facts, and there has been no unfair advantage taken of him by the other party, he is bound notwithstanding the mistake. A person who signs a written instrument without taking the trouble to examine it, cannot ordinarily plead that he misunderstood its terms. The law expects a man to take ordinary precautions in business transactions, and he must suffer for mistakes induced by his own negligence.

Fraud

This is a term we are all familiar with; yet it is not easy to define. But perhaps we will be safe in saying that fraud consists in a false statement knowingly made as to a material fact, made for the purpose of inducing a contract, and which the other party relies on.

Note that it is a statement of fact. Mere expressions of opinion, predictions or "puffing" do not constitute fraud. If I say, "That horse will live 20 years," there is no fraud though I do not believe the horse will live so long. But if I say, "This watch case is solid gold," at the same time knowing it to be merely gold-washed, the statement is fraudulent.

The false statement must be relied upon by the other party, or it will not constitute a defense. If he said, "I don't care whether the case is solid gold or not, I will give you $10 for it," he is bound notwithstanding the false statement.

In certain cases silence constitutes fraud, or what is called *fraudulent concealment.* If a party by his conduct purposely leads the other party astray so that he does not ascertain a fact, or, being in a superior position of knowledge or standing in a relation of trust toward the other, makes no disclosure, his silence is fraudulent. Thus if I sell B a cow knowing her to have a secret disease, it is fraud; but the sale of a blind horse is not fraudulent, for an examination of the horse's eyes would have shown the defect.

Misrepresentation

A misrepresentation is fraudulent only when made with knowledge of its falsity. Fraudulent misrepresentations have been considered. But a party may make a misrepresentation in good faith; that is, in the belief that it is true. That is what is ordinarily known in law as misrepresentation. The effect of an inno cent misrepresentation is, in general, the same as that of deliberate fraud—it renders the contract voidable at the instance of the other party. And this for two reasons: a party should not make representations as to matters to induce another to agree to a contract unless he is certain of the truth of what he says, and, in the second place, it would ordinarily be difficult to prove that the party knew his statement to be false.

Duress

A contract is said to be secured by duress where it is secured by force or threats. Where so secured, the will of the party from whom it is secured being overcome, it is manifest that there has been no real assent upon his part. Thus, if one's consent is obtained by imprisoning him or threatening to imprison him, or by injury or threat of injury to his person or property, he is not bound.

But mere persuasion, however constant or persistent, does not constitute duress.

Undue Influence

Undue influence may arise in either of two cases: first, as to a person in distress or great necessity, or physically or mentally weak; and second, where one party occupies a superior position as to another, as in the various family relationships and those of guardian and ward, attorney and client, and physician and patient. In the first instance, if it appears that the mind of the one laboring at a disadvantage was overcome by improper influence of the other, he may disaffirm the contract; while in the second case it is presumed that undue influence was used and it rests upon the person in the superior position to show an absence of such influence.

It does not matter that a contract is unfair and hard, if the party at a disadvantage exercises his own free will and judgment. Argument and pleading do not in themselves constitute undue influence; there must be some advantage taken of the party's influence.

LEGALITY OF OBJECT

The thing which the parties contract to do must be lawful. The law, of course, could not encourage lawbreaking by holding otherwise. We will consider the more important illegal agreements. They are as follows:

Wager Agreements

It is a matter of common knowledge that gambling agreements and "bets" are unenforceable; and that in most states money lost in gaming cannot be recovered. In many states gambling in futures is specifically inhibited by the statute. Insurance contracts, also, are wagering agreements and illegal, unless the insured has an insurable interest.

Usurious Contracts

Interest is that reasonable percentage of the face of a loan of money which may be charged for its use. The borrower is at a disadvantage as compared with the lender, who often takes advantage of his necessity to impose an exorbitant rate. To prevent this, most states have by statute fixed a maximum lawful rate. The statutes of the various states differ as to the penalty for exceeding the maximum rate, or "charging usury," as it is called; in some states the penalty is forfeiture of all interest; in others, double the interest charged, and in still others forfeiture of the entire debt, both principal and interest. The matter of interest is further considered in connection with the subject of bills and notes (page 3943).

The practice of taking usury is chiefly confined to those engaged in the business of making "short loans" on personal security. Many devices are employed to cover up the real nature of the transaction and make it appear that the legal rate has not been exceeded. The reader is warned to beware of such practices. Aside from the question of morals, and the public odium which attaches to the business, courts of justice regard it with extreme disfavor and will scent usury afar off.

The table on the next page gives the legal and maximum rates of interest for the various states of the United States and the provinces of the Dominion of Canada.

Agreements in Restraint of Trade

These are such as tend to interfere with the right of either party to engage in a particular business or calling. Such agreements are commonly made where

a business is sold out, the seller agreeing not to engage in such business within a certain locality for a certain time. In so far as the conditions are reasonable they are binding. Thus the agreement of A in selling a retail grocery store at Springfield, Ill., not to engage in the grocery business at Springfield for ten years is binding, since otherwise the purchaser of A's "good will" would obtain nothing. But an agreement by A not to engage in the business anywhere within the state would be unreasonable and void, the store not drawing custom throughout the state.

A second sort of restraint of trade arises where several competitors agree to regulate output, prices, etc. Such contracts are illegal.

Sunday Contracts

At common law such contracts were legal, but they have been quite generally forbidden by statute. The statutes of the different states differ widely, however, on this subject. In some a contract made on Sunday is voidable; in others a contract to be performed on Sunday is voidable, no matter when made. The safe course is to do no business on Sunday. Do not try to defeat the statute by subterfuge. To antedate or postdate a contract signed on Sunday is dangerous.

INTEREST TABLE

State or Province	Legal Rate	Maximum Rate	Penalty	State or Province	Legal Rate	Maximum Rate	Penalty
Alabama	8	8	a	Nevada	7	*	
Alberta	5	*		New Brunswick	5	*	
Alaska	8	12	a	New Hampshire	6	6	d
Arizona	6	*		New Jersey	6	6	a
Arkansas	6	10	c	New Mexico	6	12	b
British Columbia	5	*		New York	6	6	c
California	7	*		North Carolina	6	6	a
Colorado	8	*		North Dakota	7	12	a
Connecticut	6	*		Nova Scotia	5	*	
Delaware	6	6	c	Ohio	6	8	e
Dist. of Columbia	6	6	a	Oklahoma	7	12	a
Florida	8	10	a	Ontario	5	*	
Georgia	7	8	b	Oregon	6	10	c
Idaho	7	12		Pennsylvania	6	6	
Illinois	5	7	a	Prince Edw. Island	5	*	
Indiana	6	8	e	Quebec	5	*	
Iowa	6	8	a	Rhode Island	6	*	
Kansas	6	10	d	Saskatchewan	5	*	
Kentucky	6	6	b	South Carolina	7	8	
Louisiana	5	8	a	South Dakota	7	12	a
Maine	6	*		Tennessee	6	6	b
Manitoba	5	*		Texas	6	10	a
Maryland	6	6	b	Utah	8	*	
Massachusetts	6	*		Vermont	6	6	b
Michigan	5	7	a	Virginia	6	6	a
Minnesota	6	10	c	Washington	6	12	
Mississippi	6	10	a	West Virginia	6	6	b
Missouri	6	8	a	Wisconsin	6	10	a
Montana	8	*		Wyoming	8	12	a
Nebraska	7	10	c				

EXPLANATION OF TABLE

(*) Any rate may be charged by agreement; no usury law. (a) Usury forfeits all interest. (b) Usury forfeits excess over *maximum* rate. (c) Usurer forfeits principal and interest. (d) Forfeits double the excess over maximum rate. (e) Forfeits excess of interest over *legal* rate.

Leave the matter of execution for Monday.

FORMS OF CONTRACTS

Contracts may be implied or they may be express. Suppose you walk into a barber shop, sit down and are shaved. You have said nothing about the price of a shave; have not even asked to be shaved. But you have permitted the barber to shave you. You have made an implied contract to pay the "reasonable value of the services."

Express contracts are of three kinds: (1) oral contracts; (2) contracts in writing, not under seal; and (3) sealed instruments.

Unless the law otherwise provides, any contract may be made orally. Contracts conveying real property are generally required to be under seal. The matter of seals will be treated in connection with the subject of deeds (page 3964). Bonds and powers of attorney are also required to be under seal.

A number of other contracts are required to be in writing by the Statute of Frauds, though not required to be sealed.

STATUTE OF FRAUDS

By the statute the following contracts must be in writing, or there must be some note or memorandum of the contract signed by the party to be held, or his agent; namely, (1) the promise of an executor or administrator to answer damages out of his own estate; (2) a promise to answer for the debt or default of another; (3) a promise made in consideration of marriage; (4) a contract for the sale of any interest in land.

Note that the statute does not require that the contract shall be set forth in a formal writing. Any memoranda or other writings which clearly showed the essential points agreed upon would be sufficient. The memoranda often consist of correspondence between the parties.

Promise to Answer for Debt or Default

Such a promise is what is called in ordinary language an agreement to guarantee payment. Thus if A says to C, "Let B have what groceries he wants, and if he doesn't pay you I will," this is a guaranty of B's debt, and to be binding must be evidenced in writing. But if A says, "Furnish B 50 dollars' worth of groceries and charge to my account," there is no guaranty, for A agrees to pay in any event, and so this latter promise need not be in writing.

Contracts Relative to Land

The statute requires that contracts relative to any interest in land (excepting short leases) must be in writing. This includes not only contracts of sale, but mortgages, right-of-way agreements, sale of house to be removed from the land, etc. It does not apply to annual crops, which, though standing, may be sold by oral contract. The statute generally provides that a lease for one year or less need not be in writing.

Contract for Sale of Goods

Another section of the original English Statute of Frauds provided that no contract for the sale of goods, of the value of ten pounds or more, should be enforceable unless there were: (1) a memorandum signed by the party to be charged, or (2) a part payment (to "bind the bargain") or (3) a delivery or part delivery, accepted.

This section has been reenacted in most of the American states, the minimum value being generally fixed at $50, though in some states it is placed much lower.

CONSIDERATION

If I have promised to do something for B "for nothing," there is no contract, for he has neither given me anything in return, nor done anything for me, nor promised to give or to do. In other words, he has suffered no detriment by accepting my promise; hence the law will not compel me to abide by it. But if my promise had been conditioned upon a promise by him to pay me $10, the latter promise would constitute

a sufficient consideration for my promise and render the agreement binding.

Adequacy of Consideration

The law requires only that there shall be a consideration. As between the parties it will not, in the absence of a fraud, inquire whether the consideration was adequate. Parties must make their own bargains and be their own judges as to what is adequate. But where the rights of creditors of either party are involved gross inadequacy of consideration may lead to a presumption of fraud.

ASSIGNMENT

We have seen how an agreement between two parties, if supported by a sufficient consideration, becomes a binding contract, under which mutual rights and obligations arise. Now it may happen that one or the other of the parties for some reason desires to transfer his rights or obligations to another. Thus, A may have contracted with B to do a week's work for $15. To do the work is his obligation or duty; to receive the sum of $15 in payment therefor is his right. Now A may be taken ill so that it becomes necessary for him to procure another to perform the services in his stead; or perhaps he has performed the contract, but, being indebted to C, authorizes the latter to receive his wages of B. In the former case he assigns an obligation, in the latter a right.

What May Be Assigned

Any right acquired under a contract may be assigned, except a right to personal services. For instance, a party may assign his rights to wages to become due him. But everyone is entitled to choose for whom he will work, and when a party has contracted to labor for a given party the latter cannot by an assignment place another employer in his stead.

Obligations cannot as a rule be assigned, since they ordinarily involve the personal skill, credit or judgment of the party obligated, and it would be unreasonable to permit him to substitute in his stead one not possessing such qualities. If I contract with an honest and capable man to perform certain services for me, I am entitled to his services, and he cannot force upon me those of a dishonest or incapable substitute. But if no such personal elements are involved an obligation may be assigned.

Effect of Assignment

Now let us consider the effect of the assignment upon the three parties interested; namely, the assignor, or one making the assignment, the assignee, or one to whom it is made, and the other party to the original contract.

The assignor of an obligation continues responsible for the due performance of the contract. Thus if B rents a house of A he remains liable for the rent though he assigns the lease to C. But the assignor of a right loses all interest in the contract.

The assignee is said to "step into his assignor's shoes." That is, his rights are precisely the same as those of the assignor. Any defense which the other party might urge against the assignor may be urged against him. Thus his rights differ from those of a holder of commercial paper, who often takes a better title than his transferrer.

An assignment of a right may be made either with or without the knowledge of the other party (the debtor). If brought to his knowledge, the debtor is bound to recognize the assignment and pay to the assignee; but if not, he is at liberty to settle with the assignor. He may treat with the latter with perfect safety until notified of the assignment. It is evident from this that an assignee should see that the debtor is promptly notified. He has only himself to blame if he is undone by the assignor.

Form of and Consideration for Assignment

No particular form is required. A simple contract, note or draft is gen-

erally assigned by making an indorsement of the following nature:

"For value received I hereby assign all my right, title and interest in and to the within instrument to C. D. (signed) A. B."

If an assignment has been executed, that is, fully carried out, it is immaterial that there was no consideration. But a mere promise to make an assignment, unexecuted, is not binding where there is no consideration. This is upon the general principle that a person is not bound to respect his gift so long as it has not been fully executed.

DISCHARGE OF CONTRACTS

By the discharge of a contract we mean the extinguishment of the obligations so that no further liability exists thereunder. Discharge may arise from: (1) performance, (2) tender of performance, (3) breach by renunciation, (4) alteration of instrument, (5) agreement or (6) by operation of law.

Discharge by Performance

Performance, being the purpose of the contract, is of course the ordinary method of discharge. Formerly the courts held that only a literal performance of the terms of the contract would entitle the party to a discharge, but in late cases it has been held, with more justice, that where the details are numerous and complex, a party need show only a "substantial performance" in good faith, a proper deduction being made for any departure.

Stipulation for Satisfaction. It is quite common for persons overanxious to strike a bargain or overconfident in their own skill or the integrity of the other party, to stipulate to perform to the other's "satisfaction." This is a foolish thing to do. It is encouraging the other party to reject the performance. And yet such a stipulation will be enforced where the contract is to do something to suit one's personal taste, as where it relates to clothing, portraits or other works of art. Otherwise the other party cannot claim a breach where the performance is such that a reasonable man ought to be satisfied.

Effect of Accepting Performance. If one accepts a defective performance with full knowledge he waives the breach. Thus if a suit of clothes not made according to order is nevertheless accepted, or a clerk is retained notwithstanding he has not properly performed his duties, the purchaser or master cannot avoid payment. The rule is otherwise, of course, where the latter had no knowledge of the defect in the suit or neglect of the clerk.

Tender of Performance

Ordinarily a contract stipulates for performance of certain acts by each of the parties. If such be the case, one party cannot require performance by the other unless he has at least tendered performance on his part. But such tender need not be kept good, except where it is a tender of money in payment of a debt.

Breach by Renunciation

If one party, before the time for him to perform arrives, announces that he will not perform or does something putting out of his power to perform, he breaches the contract and the other party is discharged and may sue for the breach at once. But if the other party neglects to do so, the first party is at liberty to change his mind and perform the contract.

Alteration of Instrument

If a written contract is intentionally altered by a party in any material respect, the other party is relieved from liability thereunder. A contract is so altered where the alteration is such as to change the effect of the contract. It does not matter whether the alteration was made innocently or corruptly, so that it was intentional, but it must have been made by a party or his agent. Any tampering with a paper on the part of a third person is *spoliation*, not alteration, and does not affect the rights of the parties.

Discharge by Agreement

Of course the parties, who have by their agreement created a contract, may by agreement discharge it. The agreement to discharge may be oral even though the contract was in writing; but it would seem that if the original contract is a sealed instrument the discharge should also be under seal. A mortgagor is at any rate wise in refusing to accept anything but a sealed discharge of his mortgage.

Discharge by Operation of Law

If a bankrupt gives up his property for the benefit of his creditors he may be adjudicated a bankrupt, the effect of which will be to wipe out all his executed contracts, whether due or not. Where a contract has been discharged in this manner it may be revived by a new promise on the part of the bankrupt. The promise should be in writing.

STATUTES OF LIMITATION

When the time agreed upon for the performance of a contract arrives and there is a failure to perform, the contract is breached and a cause of action arises in favor of the innocent party. But he should not be permitted to "sleep upon his rights;" he should bring his action while the evidence in regard to the contract and its breach is yet fresh. Hence acts have been passed providing that no debt or contract may be sued upon after a certain length of time from its maturity, the period varying according as the contract is oral, written or under seal.

It is generally provided that a new promise in writing or a part payment or payment of interest will stop the running of the statute, setting it to running again from that date for the full period. And if the debtor leave the state before the statute has run, the statute will be stayed or "tolled" during his absence. Thus suppose A owed $100 on a note which became due Jan. 1, 1910; and that the statutory period of limitation was six years. On Jan. 1, 1912, he left the state and did not return until Jan. 1, 1914. Now the statute which began running Jan. 1, 1910, was stayed two whole years during his absence. Consequently the period for bringing suit would not expire until Jan. 1, 1918.

PART TWO

AGENCY

ONE MAN MAY ACT THROUGH ANOTHER

It is one of the most fundamental maxims of the law that what one may do by himself he may do through another. It was always necessary that men should be permitted so to act; and the necessity is even greater at the present time when hundreds and often thousands of assistants are necessary to conduct properly a great business concern.

A moment's reflection will show us that, where a man wishes that done which he cannot conveniently do himself, he has three courses open to him: (1) Where there are contracts to be made they may be made by an agent on his behalf; or if the thing to be done is not the making of contracts, but merely the rendering of other services, such services may be rendered (2) by a servant hired for that purpose or (3) by an independent contractor.

Distinction Between Agent and Servant

An agent is one who either makes contracts for his principal or represents the latter in adjusting disputes with reference to contracts already made, collects sums due thereon, etc. A servant on the other hand has no authority with reference to his master's contracts. Familiar examples of agents are commercial sales-

men who make contracts or "take orders," as we say, for their principals; while the term *servant* will ordinarily embrace clerks, bookkeepers, mechanics, etc. Of course a person may often be both agent and servant according to the duties he has to perform from time to time. We must, however, keep the two separate in our minds, for the rules of law with reference to the two relations differ widely.

"Independent Contractor" Distinguished

The distinction between agent and independent contractor is equally plain. Suppose I contract with a man to build me a home. This confers upon him no power, such as an agent has, to make contracts on my behalf. Nor, on the other hand, does he, like a servant, render me service or answer to my beck and call in any manner. He himself hires servants to do the work, is himself master and is answerable to me only that the house shall, when finished, be according to specification.

Power to Act as Principal or Agent

Let us first remember that two contracts are involved here: the contract between principal and agent whereby the relation of agency is established, and the contract to be made by the agent with a third person on behalf of the principal.

The principal must have full contractual capacity, as explained in treating of contracts, and consequently if he is a minor, both his contract with the agent and the latter's contract for him will be voidable at his option. But as to the agent the rule is different. A principal who has capacity may appoint a minor as his agent, who may make valid contracts on his behalf, which neither the principal nor the third person may dispute. Of course a minor may repudiate his contract of agency at pleasure.

The same rules apply where either principal or agent is insane. That is, an insane person cannot, except in the case of necessaries, be held upon any contract made by him either as principal or agent; while the contracts made by an insane agent are binding upon his principal and upon the party with whom the contract was made.

Authorization of Agent

Ordinarily authority to act as agent may be conferred upon a person in any of the ways in which a contract may be made; namely, by instrument under seal, by ordinary written contract, by oral agreement or by implication from circumstances. In many states the statute requires, however, that authority to contract for the sale of real estate must be in writing, and it is a general rule that the agent's authority must be of as high a degree of dignity as the contract to be executed. Thus, if he is to deed property or execute a mortgage on behalf of his principal, he *must*, since deeds and mortgages are sealed instruments, have been appointed by an instrument under seal. This instrument is called a *power of attorney*.

Authority of Wife to Bind Husband

Since the husband is bound to supply his wife with necessaries, if he fail to do so she may contract for the same on his credit. Much the same principles govern here as where necessaries are furnished an infant. By the term *necessaries* is meant such articles of food, clothing, medicine, lodging, etc., as are suitable to the wife's station in life. And anyone so furnishing to the wife is bound at his peril to know that she is not already supplied.

But of course the wife may be the agent of her husband, aside from cases where he fails to provide for her support. If he has uniformly permitted her to trade in his name he is bound by her contracts, though he may revoke her authority as to future contracts at any time.

RATIFICATION

Ratification of Unauthorized Acts

Very often a person thinks that he has authority to act for another when in fact he has none. Suppose A, who is a grain

buyer, is informed by his clerk that B has written directing him to buy 100 bushels of wheat for him. He accordingly buys the wheat of C. It turns out that the clerk was mistaken. Now upon the matter's being brought to B's attention he may, if he chooses, ratify A's act. If he does so the case stands precisely as though he had authorized A in the first place.

Extent of Ratification

A person ratifying a contract made on his behalf must ratify the contract as a whole. It would be unfair to permit him to ratify those provisions of the contract which were to his taste, and at the same time reject those which were not to his advantage.

Form of Ratification

Ratification must conform in solemnity with the form required for previous authorization of an agent. Where the law permits oral appointment, ratification may be by word of mouth; if a writing is required, it will also be required to ratify; and if appointment must be by power of attorney, ratification must likewise be under seal.

Time of Ratification

The party upon whose behalf an unauthorized contract has been made may ratify at any time before the party with whom the contract was made withdraws. The latter is at liberty to withdraw at any time before ratification, since until ratification no contract exists.

Ratification Implied

As we have seen, the principal may in express terms ratify, but ratification is more often to be implied from circumstances, particularly from silence. If A, learning that his agent B has contracted in excess of his authority, fails to repudiate his act, he is bound; but it would seem that if B was not authorized to act for him at all, nothing could be inferred from A's silence.

Ratification is also implied where the principal knowingly accepts the benefits of an unauthorized contract. As we have said, a party cannot accept benefits and repudiate a contract. Suppose B without authority takes orders for books for me. I accept payments on the price. I am bound, unless I did not at the time of receiving payment know of all the facts. In the latter event I must upon learning the facts return the money, if possible, before I can repudiate.

COMPENSATION OF AGENT

If there is an express contract between principal and agent, that of course determines the compensation. But the agent may enter upon his service without anything having been said about compensation. Then whether he is entitled to pay will depend upon whether the circumstances were such that compensation was reasonably to be expected. If I ask a man to work for me the law will presume that I intend to pay him what the services are reasonably worth. But if my friend offers to stop off on the way to town to pay a bill for me, it will hardly be presumed that either of us contemplated compensation. And this is especially true where the one performing services is a relative of the one for whom they are performed. The burden is upon the former to show that a definite contract for compensation was made.

When the Compensation Is Earned

An agent employed to secure a contract for his principal is entitled to compensation when he has fully accomplished what he undertook to do, even though the principal refuses to conclude the contract, or discharges the agent and then makes the contract upon his own account. The principal cannot by his wrongful act deprive the agent of his just dues.

DUTY OF AGENT TOWARD PRINCIPAL

Since an agent occupies a position of trust and confidence he must exercise the utmost good faith toward his principal. He is not only denied the right of taking secret advantage of any kind, but he will not be allowed even to place himself in the way of temptation.

Representing Both Parties

If it is so understood by all concerned an agent may represent both principals; and this is generally the case in certain kinds of transactions. But if one party is kept in ignorance of the fact that the agent is also acting for the other party, the contract is voidable at his election and the agent can recover no compensation. It is immaterial that the agent acts in entire good faith; he cannot place himself in the way of temptation.

Buying from or Selling to Himself

A person in buying will naturally buy as cheaply as possible, and in selling will sell at the highest price possible. But if he is the agent of another the same rule holds as to his purchases and sales on behalf of his principal. Since a purchase for the agent would involve a sale for the principal, and a sale the reverse, it is obvious that there would be a natural conflict of interest. If the principal consents to the transaction, of course he is in no position to complain afterwards, but if it is done without his knowledge it is ground for rescinding the contract.

Agents often attempt to avoid the law by acting through a third person, who ostensibly purchases from or sells to the agent. But this will not help matters. What cannot be done directly cannot be done by indirection.

Secret Profits and Benefits

An agent may not take advantage of his agency by securing to himself secret profits and benefits. If, having money of the principal in his hands, he puts it at interest, he must account to the principal for the interest. And so, a purchase for himself of property the principal has instructed him to buy is a breach of trust.

Any profits made as agent must be delivered up to the principal. If the agent succeeds in buying or selling on better terms than were required of him, the advantage belongs to the principal.

Negligence of Subagent

Where an agent authorizes a subagent to perform the work he himself has undertaken to perform, he is responsible in case the principal is injured as a result of the subagent's negligence. But if the principal directed the agent to secure subagents to do the work, they are in effect agents of the principal, and the agent is not responsible.

LIABILITY OF AGENT TO OTHER PARTY

We have considered the agent's duty toward his principal; we must now consider his duty to the party with whom he contracts on the principal's behalf.

Of course, the agent is not supposed to be liable upon the contract in any way; and if he either has authority to make the contract or the principal holds him out as his agent, and he makes a proper contract, he is a mere intermediary and drops out of sight as soon as the contract has been made between the principal and the other party.

But if a person, either deceitfully or through ignorance represents himself as having authority when he has none, then he is bound to respond in damages. Were he not, there would be no one for the person dealing with him to fall back on in case of loss.

AGENT'S AUTHORITY

Agent's Warrant of Authority

A is a farmer. B drives out to see him and seeks to sell him a sewing machine made by the C Co. B may say, "I am the agent for C Co.," which would be an express warrant of authority; or he may say nothing about being an agent, but merely try to persuade A to buy, and if he consents, produce an order in the name of C Co., which would be implied warranty. In either case he is liable to suit on his warranty in case he is not the agent for C Co.

Where Agent with Authority May Bind Self

But it is not merely the authorized agent that binds himself. We have seen

that an agent acting in a proper manner does not become personally bound, but is a mere intermediary. But if an agent does not disclose his principal, he is personally bound, as he is also where he voluntarily offers to be bound, for the agent, of course, has a perfect right to place himself under obligation. In the first case, if the other party discovers the principal he may at his option hold either principal or agent.

Signature of Agent

There are a number of ways in which an agent may sign his name. A great deal of legal wisdom has been wasted on the subject, and while some forms have been uniformly held good and others bad, as to a number the law still remains in a state of confusion. "William Clarke, Agent," has been held to bind the agent and not the principal; but "Louis Stephens, by William Clarke, his agent," is good and will bind Stephens. An agent should be careful always to use the latter form, and avoid the chance of becoming involved in a lawsuit. Of course if he is an agent of a special class, as a corporation president or bank cashier, he should use the word "president" or "cashier" instead of "agent."

Unauthorized Assertions of Authority

A person is not bound by the unauthorized assertions of another that he is his agent; nor by the pretentions of an agent to authority beyond that which he really has. It is true that the principal may be held, though his agent disobeys secret instructions or does things which he never intended him to do, but in this case the principal must have said or done something justifying a belief that the agent was acting within his authority.

Apparent Authority of Agent

In other words, a person may safely deal with an agent as to all matters within the scope of his apparent or ostensible authority. In what does apparent authority consist? Suppose a traveling collector visits me; am I justified in crediting him with authority? Not at all, unless I am willing to take the risk of his being without authority. I should demand to see his written authority or communicate with my creditor. But suppose my creditor has had a general agent at a certain place for a number of years, in an office rented by the principal, and who has had general charge of collections. I am justified in paying to him, for he has apparent authority.

SPECIAL CLASSES OF AGENTS

Here are three particular classes of agents: factors, or commission merchants, brokers and auctioneers.

The *commission merchant* is one who receives goods from the owners to sell on commission. Hence he has very extensive implied authority. He has power to warrant the goods, sell on credit, take notes and receive payment in his own name.

A *broker* is one whose business it is to get parties together to contract. The ordinary classes are real estate, insurance, merchandise and stock brokers, who deal in the respective commodities indicated by their names.

Brokers differ from factors in that they do not usually have possession of the goods, and their contracts are either made in the principal's name or by the parties direct, the broker merely getting them together. He has but little implied authority.

An *auctioneer* is one who sells the property of another to the "highest and best bidder." This ordinarily means the highest bidder, but if the sale is on credit a lower bidder may be the "best" bidder, owing to his financial standing. An auctioneer cannot warrant without actual authority; and it may be added that it is poor practice to take a warranty of any kind at an auction sale.

A bid is not a contract until the hammer falls, at any time before which the auctioneer may withdraw the property, unless the auction is advertised to be "without reserve."

TERMINATION OF AGENCY

The principal may terminate the relation at any time unless the agency is coupled with an interest; that is, where the agent has some interest or estate in the subject matter of the agency, as, for instance, where A, being indebted to B, appoints him his collector in order to secure the money to pay the debt.

As stated above, the principal has the *power* to revoke except in the case stated, but he has no right to revoke if the period of the agency has not expired, and may be held in damages for so doing. But if the agency is for an indefinite period, or without consideration, or the agent has violated his contract, the principal has both the right and the power to terminate the agency.

Notice of Revocation

The principal must notify the agent when he revokes his authority, and must at the same time notify his customers, since they are entitled to treat with the agent as having authority until they receive such notice.

PART THREE

NEGOTIABLE INSTRUMENTS

CHARACTERISTICS OF NEGOTIABLE PAPER.

Negotiable instruments are those special kinds of written contracts which may be transferred from hand to hand like money.

All the various classes of instruments possess two characteristics distinguishing them from ordinary contracts:

(1) *Consideration Is Presumed.* In the case of an ordinary contract the burden is upon the party bringing suit to show a consideration; but if an action be brought on a note or draft, consideration is presumed and the burden is upon the defendant to show that there was in fact no consideration.

(2) *Negotiability.* The principal characteristics of such instruments is negotiability. We have seen that a party may generally assign his rights under any contract, and also that the assignee acquires only such rights as his assignor had, and takes the contract subject to all defenses to it which might have been interposed against the assignor. But with negotiable paper it is otherwise. If the person to whom it is transferred is a holder for value and receives the paper before maturity without notice of any defenses, he takes it free from all defenses except such as destroy the contract altogether. Therefore the defenses of fraud, duress, want of consideration in the making of the contract and want of title in the transferrer cannot be interposed; though forgery, alteration, infancy of maker and illegality of contract are good defenses.

CLASSES OF NEGOTIABLE PAPER

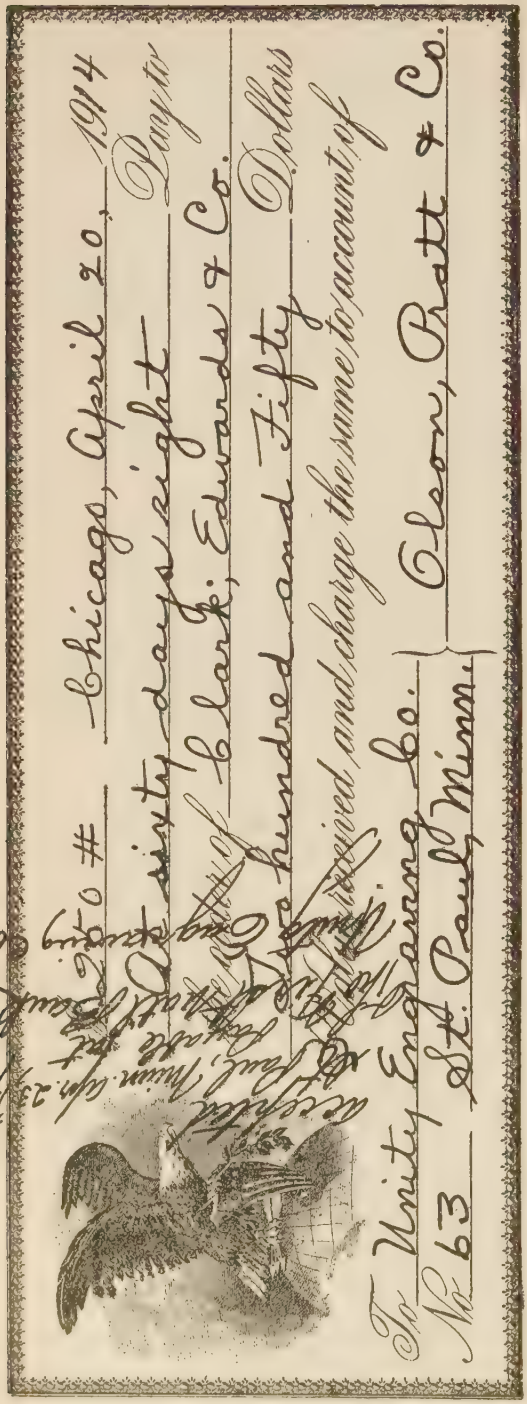
The principal forms of negotiable paper are (1) bills of exchange; (2) promissory notes; (3) certificates of deposit; (4) checks and drafts; (5) corporate bonds.

Bills of Exchange

A bill of exchange is a written order by one person (the drawer) upon another (the drawee) directing the latter to pay to the order of a third person (the payee) or to bearer, a certain sum of money. The order is to pay "at sight" or at a certain number of days after sight.

In the latter case the drawee by writing his name with the word "accepted" across the face of the draft becomes an "acceptor."

Foreign bills of exchange are drawn in sets of two or three, each part being mailed by a distinct mail. The drawee should accept but one part.


Chicago, April 20, 1914
Sixty days sight
Pay to the order of Clark, Edwards & Co.
Two hundred and Fifty
Dollars
Value received, and charge the same to account of
To Unity Engraving Co.
St. Paul, Minn.
No. 63
Clerc, Ratt & Co.

BILL OF EXCHANGE

Promissory Notes

A promissory note is an unconditional written promise by one person (the maker) to pay a certain sum of money to the order of another person (the payee) or to bearer, on demand or at a certain future time. Many of the principles laid down for promissory notes are applicable to the other kinds of negotiable paper as well.

What a Note Must Contain. A note must be in writing and be signed by the maker or his authorized agent. "Writing" includes writing with pen or pencil, print, typewriting or any combination of these. The signature may consist merely of the maker's initials or his "mark."

The maker must unconditionally promise to pay a certain sum in money.

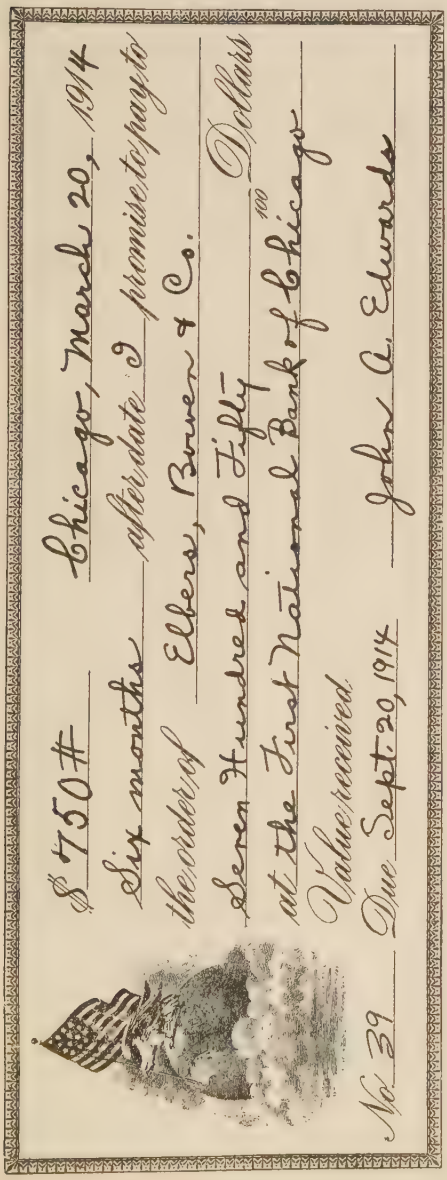
The time of payment must be fixed or capable of being determined. The note may be payable "On demand," "Sixty days after date," or "On June 1, 1915;" but not "When the payee is twenty-one," for he may never reach that age.

The note must be payable to order or to bearer. It may be payable to "the order of A. B.," to "A. B. or order," to the order of the maker (naming him), or to "A. B. or bearer," or to "cash" (which is the same thing as to bearer). But a mere promise to pay "A. B." is non-negotiable, though it constitutes a good contract.

What a Note Must Not Contain. A promissory note must not contain a promise to do any act in addition to the payment of money, with the following exceptions: (1) The *holder* may be given the option to take payment in something other than money. (2) Sale of collateral security in case of nonpayment at maturity may be authorized. (3) The note may authorize confession of judgment upon nonpayment at maturity. (4) It may waive the benefit of any law intended for the protection of the maker, such as homestead and exemption laws, unless waiver is forbidden by statute.

Nonessentials. There are certain recitals the presence or absence of which will not affect the negotiability of a note.

It is customary to insert the words "for value received," but a *consideration* will be presumed though they are omitted. Though it is best to date a note, it may be issued undated, and the true date may be inserted by any holder. A careful man will state the place where the note is made and the place of payment, but these are not essential.


$ 750 #
Chicago, March 20, 1914
Six months after date I promise to pay to
the order of Ellers, Bruen & Co.
Seven Hundred and Fifty 100 Dollars
at the First National Bank of Chicago
Value received
No. 39 Due Sept 20, 1914
John A. Edwards

SIMPLE PROMISSORY NOTE

If a note is to bear interest before maturity, that fact should be stated, and the rate should also be stated where greater than the "legal rate." (See Interest Table, page 4416.) A note draws interest at the legal rate after maturity, though it contains no provision as to interest.

To clarify the foregoing statement we first give a promissory note in the simplest form, and follow with one containing numerous provisions. Both forms are negotiable.

Certificates of Deposit

Certificates of deposit are in effect promissory notes, though they differ in form. They are in two forms, one not drawing interest and payable on demand, and the other payable at a fixed future date with interest. A certificate of deposit is generally taken by one depositing money against which he does not wish to draw checks.

Checks

A check is a bill of exchange drawn on a bank and payable on demand. If the payee is in doubt as to the standing of the drawer he can ask to have it certified. When certified, the bank becomes personally liable to the payee.

Bank Drafts

A draft is a check drawn by one bank on another, payable, like other checks, on demand. In order that banks may furnish their customers with drafts it is their custom to keep accounts with leading banks in some of the great cities, against which they may draw. If, for instance, John Doe of Davenport owes John Sparowe of Fond du Lac $100, he may go to the Travelers' Bank of Davenport, which will, upon payment of $100 and a few cents "exchange," give him a draft for that amount on the Columbian National Bank of Chicago. This he forwards to John Sparowe, who cashes it at his local bank, by whom it is forwarded to the Columbian Bank, which charges it against the Travelers' Bank.

Corporate Bonds

Such bonds are in effect promissory notes issued under the seal of a corporation, municipality or state. They have attached to them little coupon notes for each installment of interest as it falls due. These coupons may be detached and presented for payment at maturity, or they may be negotiated like any other promissory note.

NEGOTIATION

An instrument is negotiated when it is transferred from one person to another in such manner as to constitute the latter the legal holder thereof. It may be by indorsement and delivery, or by indorsement alone, according as the instrument requires or does not require indorsement. An instrument payable to bearer or whose last indorsement is in blank may be transferred by simple delivery; one payable to order must be indorsed.

Indorsement

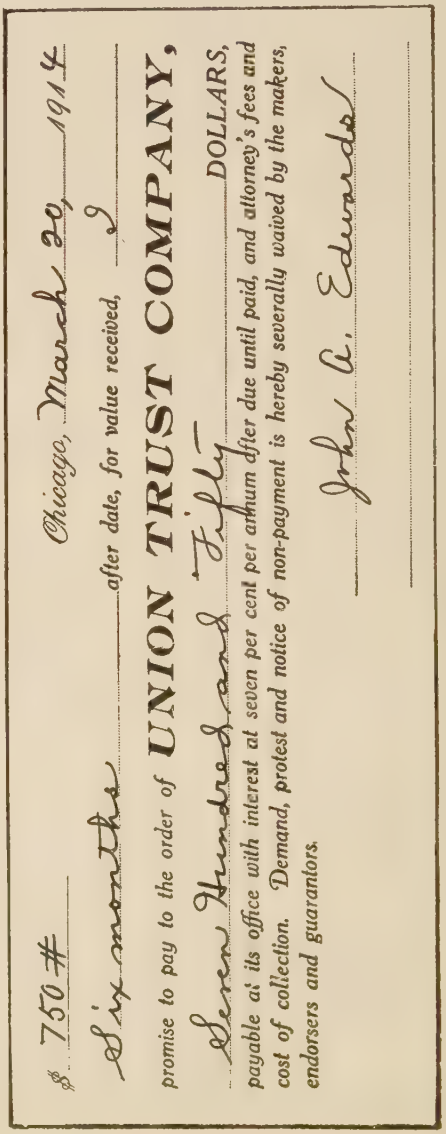
There are four kinds of indorsement: (1) indorsement in blank, in which the indorser simply signs his name on the back of the instrument, which makes it payable to bearer; (2) special indorsement, specifying the indorsee (as "Pay to A. B. C. D.") and preventing any further transfer without his indorsement; (3) indorsement without recourse, made by writing the words "without recourse" above the indorser's name, which serves to pass title without rendering the indorser liable; (4) restrictive indorsement, as "Pay A. B. only. C. D." or "Pay A. B. for collection," which stops further negotiation of the paper and makes the indorsee the mere collection agent of the indorser.

The last transferee or indorsee is called the "holder."

Any holder may convert an indorsement in blank into a special indorsement by writing "Pay to (his name)" over the blank indorsement.

Holder in Due Course

A holder in due course, often called a "bona fide purchaser for value without notice," is one who purchases unmatured negotiable paper which is regular on its face, pays value for it and is at the time without notice that there is anything wrong with the paper. He is one who buys paper in the regular order of business. If paper is past due or contains blanks or irregularities the holder is put on inquiry, and cannot plead that he pur-


$ 750 #

Chicago, March 20, 1914

Six months after date, for value received, I

promise to pay to the order of UNION TRUST COMPANY,

Seven Hundred and Fifty DOLLARS,

payable at its office with interest at seven per cent per annum after due until paid, and attorney's fees and cost of collection. Demand, protest and notice of non-payment is hereby severally waived by the makers, endorsers and guarantors.

John A. Edwards

COMPLETE PROMISSORY NOTE

chased "without notice" of defenses against the paper.

Grossly inadequate consideration will also serve to raise a suspicion of bad faith on the part of the holder. Suppose, for instance, a banker buys a $100 note of a stranger for $10. The note is signed by a substantial farmer of the vicinity and is not yet due. A court would scarcely hesitate in declaring that there was collusion between the banker and the stranger.

The holder in due course holds the instrument free from all personal defenses; namely, fraud, duress, want of consideration, release of maker or indorser, absence of title in transferrer; but does not hold it free from absolute defenses; for example, forgery, alteration, infancy, etc.

Contract of Maker of Note

It is evident that, after a negotiable instrument has been indorsed in different ways by several different persons, a number of contracts have arisen, all based on the same instrument.

The maker of a promissory note contracts that he will pay the note absolutely, an obligation which is not changed by any subsequent transfer of the note. To hold an indorser, the holder must search out the maker and present the note at maturity, but the maker himself may be sued upon failure to pay at maturity though payment has not been demanded.

Contract of Acceptor of Bill

The acceptor's contract is also absolute. By accepting he vouches for the genuineness of the drawer's signature and undertakes that he will pay the bill according to the terms of his acceptance. Acceptances are of two kinds, general and qualified. In the former case the acceptor is liable like the maker of a promissory note. But an acceptance may be qualified; that is, the acceptor may (1) make the payment depend upon some condition; (2) accept for a part only of the sum specified; (3) change the time of payment; or (4) change the place of payment.

The holder may refuse a qualified acceptance. But if he takes it the drawer and prior indorsers are released unless they are notified and concur.

Letter of Credit

The holder of a bill may refuse an acceptance not indorsed on the instrument itself, and treat it as dishonored. But such an acceptance is good. In fact it frequently happens that a party by a separate writing (a letter generally) agrees to accept bills before they are drawn. A formal letter of this kind, by which a bank agrees in advance to accept bills drawn upon it to a certain amount, is known as a "letter of credit."

A, about to travel abroad, will need money from time to time. He buys a letter of credit for $500 at his bank. This letter gives his name, a description of his person, and bears his signature for identification. Arriving at Paris, he calls at a bank and asks for $100. The bank draws a draft on his bank for that amount, which he signs. The amount of the draft is then indorsed on the letter of credit, leaving a balance of $400, and he is paid the amount of his draft.

Presentment for Acceptance

The reader will readily understand the purpose of presentation for acceptance. It is to ascertain whether the drawee intends to pay the bill at maturity. It is required only in case of bills payable "after sight," and the drawee is entitled to 24 hours to determine whether he will accept. Presentment must be made during office hours on a business day. It cannot be made on a holiday nor after Saturday noon.

If the bill is accepted the holder retains it until maturity or negotiates it. At maturity it must be presented for payment by the then holder, and, if payment is refused, protested, and the drawer and indorsers notified.

Dishonor

If acceptance is refused, the bill is dishonored; of which the holder must

cause the drawer and indorsers to be given due notice, and in case of a foreign bill he must also cause it to be protested for nonacceptance.

Drawer's Undertaking

The drawer of a bill of exchange, draft or check undertakes that he will pay the same provided it is duly presented for acceptance or payment, as the case may be, and in case it is dishonored that he is given due notice. In case of a foreign bill his contract is also conditioned that it shall be promptly protested in case of dishonor. The holder must act with dispatch in all three matters in order to hold the drawer.

Indorser's Undertaking

The indorser's undertaking is the same whether it be upon a bill or note. Like a drawer he contracts that he will pay provided the bill or note is duly presented and notice duly given and protest made in case of dishonor. He also warrants (1) that the instrument is genuine; (2) that his title to it is good; (3) that the drawer or maker and prior indorsers had capacity to contract; and (4) that the instrument is still valid and subsisting.

An indorser "without recourse" does not undertake to pay in case of dishonor, but does make the foregoing warranties, and in case of a breach of anyone of them can be held equally with other indorsers. Let no one imagine that by writing the words "without recourse" above his signature he escapes all liability.

Order of Liability Among Indorsers

Indorsers are presumed to be liable in the order in which their indorsements appear, beginning with the last; but it may be shown that they are not liable in that order.

Accommodation Indorsers

Indorsements are ordinarily made by the owners of paper for the purpose of transferring it to another. But the indorser may not be the owner. He may indorse merely to lend his credit to another party. For instance, Jones has credit at the bank and Brown has not. Brown makes a note payable to Jones, who, to accommodate Brown, indorses it in blank. It is now payable to bearer. Brown takes it to the bank, where it is cashed on the strength of Jones's indorsement.

It is manifest that though Jones's indorsement appears above that of Brown, he is not in any way liable to Brown, though he is to the bank if the note is not paid at maturity.

Irregular Indorsers

Let us take another case. Smith has given you his note for a debt he owed you. You are in need of money but the note is not yet due. Neither Smith nor you have credit at the bank, which consequently will not cash the note on your indorsement. But your friend Hamilton has credit, so you get him to indorse the note. You then take the note to the bank, which cashes it upon the strength of Hamilton's indorsement.

Hamilton is an accommodation indorser, but he is something more. You are the payee in the note, but his indorsement appears before yours. It is evident to anyone looking at the note that there is a break in the chain of transmission. His indorsement appears to be out of place and so he is called an "irregular indorser."

Of course Hamilton is not liable to you upon the note, although he is to subsequent holders.

Guarantors

A guarantor is one who writes a guaranty upon the back of the note, generally in the words "For value received, I hereby guaranty the payment of the written note," followed by his signature. He undertakes to pay if the maker or any prior indorser does not, irrespective of presentment or notice.

Indorsement Waiving Protest

Now suppose Dale holds a note. Potts offers to buy it provided he will guaranty the payment. Dale does so. This is

better for Potts than a mere indorsement by Dale, provided he does not care to sell it, for he is not held to presentment and notice of nonpayment. But if Potts sells the note to Holmes it is doubtful whether the guaranty passes to him. Consequently it is much better for Potts to require of Dale, not a guaranty, but an indorsement "waiving protest." This is done by having Dale write the words "waiving protest" above his signature.

Presentment for Payment

We have seen that the first thing required of the holder in order to hold the drawer and indorsers of commercial paper is due presentment for payment. Unless presentment is properly made they will be released from liability, except where they have waived presentment ("waiving protest" waives presentment and notice as well), or there is some good excuse for failure to present.

Place of Presentment. If the instrument states where payment is to be made, presentment must be made at that place. Otherwise presentment should be made at the maker's or acceptor's place of business. If he has none, then at his residence, and failing that, upon him wherever he can be found or at his last known place of business or residence.

Time of Presentment. If the time of payment is fixed in the instrument, presentment must be made on that day, unless it falls on Saturday, Sunday or a holiday, when presentment must be made on the next succeeding business day.

Failure to make presentment upon the required day will be excused if due to circumstances beyond the control of the holder, and he acts promptly as soon as the cause of delay ceases to operate.

Notice of Dishonor

If payment of an instrument is refused (and, in case of a bill of exchange, if acceptance is refused), the holder must, in order to hold the drawer and indorsers, give them notice of dishonor. The notice may be served by the holder, by his agent or by a notary, and may be delivered personally or sent by mail. The holder notifies the last indorser, who in turn notifies the one preceding him, and so on back to the first indorser, or drawer. Or the holder may if he desires (and it is commonly done) notify all prior parties.

Protest

The protest is a solemn declaration on the part of a notary public, protesting against any loss which the holder may suffer by reason of the nonacceptance or nonpayment of a bill or note. It is required in the case of bills of exchange and is generally used in the case of other negotiable instruments. Its purpose is, as will be readily seen, to furnish the holder with evidence of the dishonor in a suit against the drawer or indorsers. In case no notary can be had, it may be made by anyone in the presence of witnesses.

In practice, a notary makes presentment, mails notices of dishonor, and then prepares a certificate of protest upon the proper legal form, such certificate embracing a statement as to the parties to whom notice has been sent, with their addresses. The protest itself is indicated by writing across the face of the bill or note "Payment demanded and refused Nov. 16, 1914," followed by the signature of the notary and a notation of the fees.

Presentment of Checks

Where the holder of a check resides in the town where the bank on which it is drawn is located, he should present the check before close of banking hours on the business day following the day of its issuance. If he lives in a different place he should start the check by a reasonably direct route to the bank not later than the day following its delivery. The reason is manifest. Where the cashing of a check is unreasonably delayed the bank may fail in the meantime, and the drawer lose his deposit. Having given his check he will naturally suppose that it has been cashed and his deposit reduced to that extent. It is just that

any loss resulting should fall on the negligent holder of the check; however, courts will usually favor the holder of an uncashed check.

Certification of Check

The certification of a check releases the drawer and indorsers, if any, from further liability; since certification in this case is the same as acceptance of an ordinary bill of exchange. The bank alone is liable.

Liability of Bank

A bank may refuse to pay a check even though it has funds on hand with which to meet it, and the holder of the check has no recourse against the bank. His only remedy is to notify the drawer and bring suit against him. But with a depositor the case is different. If the bank wrongfully dishonors his check, he may bring action against it for injury to his credit.

PART FOUR

SALES OF PERSONAL PROPERTY

NATURE OF TRANSACTION

The law divides property of every description into two classes: (1) real estate, consisting in land and the buildings or other things permanently attached thereto; and (2) personal property, consisting in all things capable of being moved from place to place, and including goods or chattels and choses in action (negotiable paper, etc.)

A sale is a transfer of the absolute property in a thing for a price in money. It is to be distinguished from a "contract to sell." In a sale the transfer is executed and the title ordinarily passes at once to the buyer, even though the goods remain in the possession of the seller. But under a contract to sell in the future the title remains in the seller until the contract is executed by a delivery.

Consideration or Price

To constitute a sale there must be a money consideration, paid or promised. If there is no consideration the transaction is a gift, which we need not consider, since gifts are hardly of a business nature. If the consideration is another chattel, the transaction is no sale, but a barter or exchange. This distinction is not important, however, since the law of sales applies quite generally to contracts of barter.

When no price is agreed upon, the law implies a reasonable price; and if the commodity is one having a market price, then the market price at the time and place of delivery will ordinarily be adopted as reasonable.

When the Title Passes

If the intention of the parties can be shown, it will in all cases determine the time at which the title passes, and who consequently must suffer in case the goods be lost, stolen or injured. Where the intention is not manifest, if the price is paid or credit expressly given the title passes at once, unless something remains to be done to put the goods in deliverable condition, as where they are to be weighed, measured or separated from a larger mass. The same is true where the buyer does not own the commodity sold, but expects to go into the market and get it.

Delivery as Against Third Persons

While neither payment nor delivery is necessary to a valid sale as between seller and buyer, as against creditors of or subsequent purchasers from the seller, delivery of the goods is of the utmost importance. Absence of delivery and change of possession raise a presumption of fraud in their favor. The reason for the rule is that the buyer, by permitting the seller to remain in possession, clothes

him with apparent title and thus enables him to impose upon creditors and subsequent purchasers.

WARRANTY

Caution to Purchaser

The Latin phrase *Caveat emptor,* means, "Let the purchaser beware." The courts cannot make his purchases for him. He must look out for himself, and he takes the risk as to the quality of the goods in all cases where they are open to inspection, unless there be fraud or a warranty.

Implied Warranty of Title

Where the commodity is at the time of sale in the possession of the seller or his agent, there is an implied warranty that he is the owner thereof, free from encumbrance. But there is no implied warranty of title where a third person claiming adversely is in possession, where the seller simply undertakes to transfer what interest he may have or where he sells subject to some outstanding claim.

Implied Warranty of Quality

A manufacturer selling goods makes an implied warranty that they are free from latent defects rendering them unfit for the purpose to which such goods are usually put.

One selling goods by sample impliedly warrants that the bulk when delivered shall conform to the sample. But, of course, if the buyer has an opportunity to and does inspect the bulk before the purchase, he is in no condition to complain of any want of conformity. If sample and bulk are alike defective, the defect in the bulk cannot be complained of.

Sale by Description

Where goods are sold by description there is an implied warranty that they shall be of the description, kind or variety contracted for. Thus, if apple trees purchased be described in the order as "Peerless" and some other or inferior variety is delivered, the seller is guilty of breach of warranty.

Fitness for Particular Purpose

Where the buyer informs the seller that he is buying the goods for a particular purpose, there is an implied warranty that they shall be reasonably suited to the use intended. Thus, if he buys barrels to be filled with wine, there is an implied warranty that they will not leak. And if he buys hay to feed his horses, there is an implied warranty that it is such as horses will eat.

NOTICE AND RECORD OF SALE

In many states statutes have been passed for the protection of creditors and subsequent purchasers against owners of chattels. The most common subjects covered are: (1) conditional sales; (2) bulk sales of entire stock of merchandise; and (3) chattel mortgages.

Conditional Sales

Where the seller of an article of personal property retains the title in himself as security for the payment of the price, most states require that he shall record the contract, and that if he fails to do so he cannot claim the property as against creditors or subsequent purchasers from the party to whom the article was sold.

A great many schemes are resorted to to disguise contracts of conditional sale so as to avoid the statute, a so-called "lease" being a common device. But the name or language used matters little. So long as the court can make out the intent of the parties it will apply the law.

Bulk Sales

Merchants often attempt to swindle their creditors by making a sale of their entire stock in trade to one person; often someone in collusion with the merchant. The statutes of some states provide that such sales shall be of no effect as against creditors of the seller, unless made upon notice to creditors, or the sale is recorded, or both.

Chattel Mortgages

A creditor taking a chattel mortgage from his debtor must either take possession of the mortgaged goods or see that the mortgage is duly and promptly filed with the proper officer. If he fails to do so, while the mortgage is good as between him and the mortgagor, it is of no effect as against a subsequent purchaser of the chattel from the mortgagor.

PERFORMANCE OF CONTRACT OF SALE

The ordinary rules of contract govern performance. That is, each party is bound to perform, unless some act or omission on the part of the other excuses him. For instance, where the sale is for cash the seller is only bound to tender the goods, and if he does not receive the goods he need not deliver.

Place of Delivery

Delivery must be made at the place agreed upon. If the parties reside in the same place and nothing is stated as to place of delivery, the buyer must call for the goods, the seller being under no obligation to take them to him. And if the buyer resides elsewhere, it is usually implied that the seller is to deliver the goods to a carrier. In such case the carrier is the agent of the buyer, and if the goods are destroyed or injured during transportation the loss falls upon him.

Time of Delivery

Time is the essence of the contract, and, unless strict performance is waived by the other party, delivery must be made or tendered within the time stated. If no time is stated, a reasonable time is implied.

Effect of Aceptance

Where delivery is delayed and the goods arrive late, the buyer is generally at liberty to accept them and still recover damages for the delay. But if, with full knowledge of his rights, he pays the full price at delivery without protesting, it would seem that he cannot recover any part of it.

In the same way, if the buyer accepts goods inferior in quality to those ordered, he does not thereby waive his right to recover on an express warranty of quality, unless his acceptance is with full knowledge of the breach.

Vendor's Lien

Unless the sale is on credit, the seller need not surrender the goods until he receives his pay. But if he parts with the possession his lien is lost and cannot be restored. He may, however, deliver a part of the goods and retain the remainder until the price of the whole is paid.

Stoppage in Transit

We have seen that delivery to a carrier is a delivery to the buyer, and, as we have just remarked, the seller loses his lien by a delivery. To the latter rule there is one exception; and that is that if, after the goods have been delivered to a carrier, and while they are still in transit, the buyer becomes insolvent, the seller may stop the goods (by notice served on the carrier) and repossess them. This is called the right of *stoppage in transitu*. If, before the right has been exercised, the buyer disposes of his interest by a transfer of the bill of lading, the right cannot be asserted as against an innocent purchaser.

Rescission by Buyer

The right of either party to a contract to rescind it (declare it void) in case of fraud, misrepresentation, etc., of course applies to contracts of sale. The buyer may rescind upon any of these grounds. But he cannot both rescind and at the same time retain the benefits of the transaction. He must, so far as possible, place the seller in the position which he occupied in the beginning. As a condition precedent to rescission he must return any money or property which he has received under the contract.

PART FIVE

BAILMENTS

BAILMENTS DEFINED

The term *bailment* is not in common use, though the names of the different classes of bailments are popularly understood. It is important that we should fully appreciate the meaning of the general term. We have seen that in a sale of personal property the owner parts with the absolute title. Now a bailment is a delivery of personal property by one person to another for a particular purpose, the property to be returned when that purpose is accomplished. The person to whom the property is delivered is entitled to the *possession* of the property until the object of the bailment is accomplished, but the *title* remains in the bailor, as the person delivering the property is called.

GENERAL PRINCIPLES GOVERNING BAILMENTS

Bailments are of three kinds, according as the bailment is made for the sole benefit of the bailor, or of the bailee, or for their mutual benefit. The questions which most commonly arise are as to the responsibility of the bailee in the care of the property. Stated broadly, if the bailment is for the sole benefit of the bailor, the bailee is liable only where loss results from his gross negligence; if for the sole benefit of the bailee, he is liable if loss results from even slight negligence on his part; while where the bailment is for their mutual benefit, the bailee is liable for injury resulting from ordinary negligence.

CLASSES OF BAILMENTS

There are two kinds of bailments for the exclusive benefit of the bailor: *deposit,* where he deposits goods with another to be cared for without recompense, and *mandate,* where the goods are not only to be cared for by the bailee, but he is also to perform certain work in connection with them, without pay.

There is but one sort of bailment for the exclusive benefit of the bailee, the *accommodation* or gratuitous loan.

There are five forms of bailment for the benefit of both parties. One of these, called *pledge* or pawn, exists where a person places goods in the possession of another as security for a debt. The other four are all described by the term *hire,* our language not being sufficiently discriminative in this respect. They are: (1) hire of the use of a thing, as where a person hires a horse and buggy at a livery stable; (2) hire of services on a thing; (3) hire of the custody of a thing, as where I pay a storage company to store my household furniture until my return from Europe; (4) hire of carriage of goods.

Deposit

A careful examination of the foregoing section shows us that there are two classes of deposits: naked deposits to be cared for without recompense, and deposits for hire where the bailor agrees to pay "storage charges." We treat of the former here. The deposit may be of goods, live stock or of commercial paper. But it must be voluntarily accepted by the bailee. If I send B a rifle without his undertaking to care for it, he is not responsible for loss. A person who does undertake to care for a naked deposit is responsible only for gross neglect. He is entitled to use the thing deposited only so far as may be necessary to its proper preservation.

Mandate

Mandates also are of two kinds: naked mandates, as where B offers to take A's watch, mend it for him gratuitously and return it; and work performed upon a thing for hire. In the case of a naked mandate the bailee is held only to the

exercise of slight diligence, and is liable only where the article is lost or improperly repaired through his gross negligence.

Accommodation

An accommodation or gratuitous loan can arise only as a result of contract. A mere promise to lend gratuitously is not binding because there is no consideration, but after the loan is effected the contract is complete. As this bailment is entirely for the benefit of the bailee, the bailor is under no obligation except to warn the bailee of any dangerous defects in the thing bailed; while the bailee must exercise the greatest care in keeping and using it, and must not deviate from the terms under which it is lent to him.

Take an illustration: A loans his horse and buggy to B, telling the latter, "Don't let anyone else have the horse, and don't drive him faster than six miles an hour." If the horse, without B's fault, runs away and B is injured, A is responsible, having failed to notify B that the horse was given to running away. If B drives the horse eight miles an hour and the horse is injured, he is liable. If B loans the horse to C, he must pay for its use by the latter.

Pledge

As this form of bailment is for the benefit of both parties, the bailee is held only to the exercise of ordinary care of the article paroled. Pawnbrokers, like usurers, are not favored by the law, and no agreement of the parties can make the pledge irrevocable, since a pledge is usually made under the stress of necessity. But if the debt is not paid at maturity the pawnbroker may sell the pledge. Unless the contract provides for a private sale, the sale must be at public auction. The matter of pawnbrokers is largely regulated by statute and the statute should always be consulted when a question arises.

Hire

Hire of Use of a Thing. As in the case of a gratuitous loan, the bailee must not deviate from the terms of the agreement as to the manner in which the article loaned shall be used. If, for instance, he hires a horse to make a trip, he must not loan it to another, travel at a greater speed than that agreed upon, go by a route different from that specified, or keep the horse beyond the time agreed. If he does he must pay damages. As he pays for the use of the horse he is not, however, held to as high a degree of care as where the loan is gratuitous. He is bound only to exercise that care which a man of ordinary prudence would exercise with reference to his own property.

Hire of Services on a Thing. If a man hire another to work for him and then sets him at work mending a machine under his direction, the relation of master and servant arises. The master does not part with the possession of the machine and there is no bailment involved. But if he requests a mechanic to take the machine to his shop and mend it, no relation of master and servant exists, but instead, that of bailor and bailee, and if the machine is lost or injured through the failure of the mechanic to exercise ordinary care, he is liable in damages. *Ordinary care* is the care which men of ordinary prudence observe with reference to their own property.

Hire of Custody. This is a hiring of care and attention. All classes of persons who assume this responsibility are bound to exercise ordinary diligence except in special cases. To this class belong (1) *agistors,* or persons who take in live stock to stable or pasture; (2) *warehousemen,* who receive goods to be stored for hire; (3) *wharfingers,* who keep wharves for the purpose of receiving and shipping merchandise; (4) *safe deposit companies;* and (5) *innkeepers.*

Hire of Carriage of Goods. Carriers are of two kinds, private carriers and common carriers.

A *private carrier* is one who *occasionally* carries goods from one place to another and does not undertake to carry for the public generally. If he carries

gratuitously he is liable only for losses resulting from his gross negligence, but if he carries for hire he must exercise ordinary care, such as we have seen is required of a bailee who keeps or repairs a chattel for hire. And if, in his contract, he guarantees safe delivery, he is liable as an insurer the same as a common carrier.

A *common carrier* is one who undertakes to carry goods for persons generally and holds himself out as ready to transport goods for hire *as a business,* and not as an occasional occupation. Common carriers embrace railway companies, express companies, draymen, stagecoach proprietors, steamship and steamboat companies, ferrymen, etc.

A common carrier must transport all suitable goods presented to him for a reasonable hire, and has no right to charge one person a higher rate than he charges another. His liability for loss is very great. In general, the carrier is considered an insurer of the goods, except as to losses occasioned by the act of God, inevitable accident, the public enemy, or from natural causes, such as fermentation, decay of perishable articles or moderate wear and tear.

PART SIX

PARTNERSHIP

PARTNERSHIP DEFINED

A partnership is an unincorporated association of two or more persons who have agreed to combine their labor, property and skill, or some of these elements, for the purpose of engaging in any lawful business, sharing the profits and losses between them. A contract is essential to the formation of the relation, for one who enters into partnership with another does so at his peril, and the law will not tolerate that its obligations should be thrust upon him. And the business must be lawful. The courts will not protect a lawbreaker, as a gambler or procurer, against the frauds of his copartners.

Partnership involves the conducting of a "business." Hence if the parties merely undertake a particular piece of work together, there is no partnership. Where, for instance, two physicians merely undertake to treat one patient together, the transaction is not a partnership, but a "joint adventure."

Partnership Property

A partnership is not an artificial person, as a corporation is, and yet in certain respects it is so treated. The firm's capital (whether the partners pay in equal amounts, or unequal or, as often happens, all is paid in by one partner) upon being paid in becomes the fund of the firm. The firm is debtor to its different members for the capital contributed, and may become the creditor of a member to whom money is loaned from the fund.

But real estate can neither be conveyed to or by a partnership. Thus a deed to "Brown & Grant" is not good. It should be to "John Brown and Fred Grant." Likewise in a conveyance of firm real estate the deed should be signed by Brown and Grant severally.

Upon the death of a partner the surviving partner or partners are authorized to sell the partnership property, convert it into cash, pay the firm's debts and divide the balance with the personal representatives of the deceased.

Rights of Creditors

A partnership may be in debt and its individual members also in debt. If there is a conflict between the creditors of the firm and those of a partner or partners over the partnership funds, it is but proper that the former should prevail;

and such is the law. Suppose A of the firm of A, B and C owes X $1000 for groceries purchased for his family, and the firm owes Y $1000 on a stock of dry goods purchased of him. Both creditors sue out attachment and the partnership property is seized. The property sells for $900. X gets nothing, for the claim of Y, being against the firm, was entitled to priority.

Partner's Interest in Partnership Property

Under ordinary circumstances, where two persons buy an article together they are what is called owners in common. If each has paid one-half of the price, each is the owner of a one-half interest in the article and may sell such interest, but no more.

But partners are not owners in common of the partnership property. The only right an individual partner has in such property is to have it sold, the proceeds applied in payment of the firm debts, and the balance, if any, divided among the partners.

Partner as Agent of Firm

Each partner is the agent of the other partner or partners for the purpose of the partnership business. While acting within the scope of the partnership business his contracts made on behalf of the firm are binding, unless the person with whom he dealt has notice that his acts are not authorized by the other partners. He may collect debts due the firm and sell its goods. Hence the saying that he who takes a partner does so at his peril. He should be thoroughly satisfied as to his integrity.

Duty of Partner

But it must not be inferred that a partner may lawfully do as he pleases as to partnership property and credit. If an active partner he must devote himself exclusively to the firm's business and must act toward the firm in all good faith. He cannot make a secret profit from sales to the firm or purchases from the firm, nor may he deal secretly with the firm, through a nominal buyer or seller. The law will hold him to a strict accountability for any failure in this regard, if he is responsible and can be reached.

DISSOLUTION OF PARTNERSHIP

A partnership may be dissolved (1) by operation of law, (2) by act of the parties or (3) by a suit for an accounting.

The ordinary instances in which a firm is dissolved by operation of law are where a partner dies or becomes bankrupt. The interest of the deceased or bankrupt partner then passes to his personal representative (executor or administrator) or assignee in bankruptcy. But the latter is not a member of the firm.

The law will not force a new partner upon a firm. Hence the business of the firm is wound up, the assets realized upon, and the deceased or bankrupt partner's share paid over to his representative.

A firm may also be dissolved by act of the partners. If the partnership was for a fixed period, it is dissolved by the expiration of such period; if not, either partner may declare the firm dissolved at pleasure.

If the business is being carried on at a loss, or if one of the partners is guilty of bad faith, a party may, without waiting for the expiration of the term, bring suit for an accounting, and the business will be investigated by the court and a dissolution ordered in such manner as may appear equitable.

Closing Up the Business

Where a partnership is dissolved the firm property must be converted into cash, the debts paid, and any balance divided among the partners. That this may be properly done, it is necessary that many of the activities of the business cease. Of course the sale of goods continues; contracts made before dissolution must be completed, and debts must be settled; but no new contracts may be undertaken.

Distribution of Proceeds

After the firm property has been converted into money, it is distributed as follows:

First, the general creditors of the firm are paid (not creditors of individual partners). If there is not enough to pay them, then the creditors may proceed against the partners, or any one of them, for the unsatisfied balance.

Second, after the general creditors have been paid, individual partners are entitled to payment for money lent by them to the firm.

Third, all the debts of the firm being paid, the partners are entitled to repayment of capital advanced by them in starting the business, in the proportion in which it was paid in.

Fourth, whatever remains after payment of the above classes of claims is then divided among the partners in the proportion in which they were to share profits.

Sharing Profits and Losses

The proportion in which profits or losses shall be shared is generally fixed in the partnership agreement; and, as we have seen, it bears no necessary relation to the amounts which each contribute to the capital of the firm. For instance, A may have contributed 75 per cent of the capital and B but 25 per cent, under a partnership agreement by the terms of which, in view of B's superior business qualifications, each was to receive 50 per cent of the profits.

PART SEVEN

CORPORATIONS

CORPORATIONS DISTINGUISHED FROM PARTNERSHIP

Corporations, though formed like partnerships by the association of individuals, differ from them in many respects. In the first place, the members of a corporation are neither liable for the debts of the corporation, nor can they merely as members bind the corporation by their acts. Instead of having equal authority, as in a partnership, the members meet and choose officers from their numbers, to whom alone is intrusted the management and control of the corporation business. Again, the capital of the corporation is divided into shares, and a member may freely dispose of his shares without in any manner affecting the life of the corporation.

FORMATION OF CORPORATIONS

Sometimes corporations are created by a charter emanating from the Legislature, but as a rule they are now formed by filing with a certain designated public official, as for instance, the secretary of state, articles of incorporation. This is proposed corporation, object, amount of capital stock and number of shares into which it is divided, place where the principal place of business is to be located, term of corporate existence, number of its directors, etc.

In organizing, the members subscribe for stock in the corporation, which they agree to pay for as soon as issued. They, and the persons to whom they may from time to time sell stock, are known as the stockholders or shareholders.

Transfer of Stock

As stock is issued to shareholders, a stock certificate is given them, and an entry thereof is made on the books of the corporation, and no subsequent transfer is complete until the new shareholder's name has been entered. It is customary to indorse a power of attorney on the certificate authorizing the holder to make the transfer, and leave the name of the transferee blank. The certificate may then circulate from hand

to hand until some holder chooses to insert his name and have the stock transferred to him on the books.

Directors

We have seen that in partnerships each partner is the agent of the firm. But the shareholders of a corporation are not its agents. They must meet in stockholders' meeting and elect directors, who are the general managers of the business, with power to appoint the necessary active agents or officers.

The directors are vested with extensive powers. They cannot change the nature or purpose of the corporation, increase or decrease the capital stock, dissolve the corporation or consolidate it with another, these powers belonging to the stockholders. But practically all other matters are in their hands.

Officers and Other Agents

The officers of the corporation are appointed by the directors, the other agents sometimes by the directors and sometimes by an officer, and the servants (clerks and other employees) by the proper officer.

The officers consist generally of a president, vice-president, secretary and treasurer. If the corporation is a large one there will also be a general manager. He is the chief assistant of the president, generally hiring all servants and minor agents and conducting all the routine business. The duties of the regular officers are sufficiently indicated by their names. The president is commonly also chairman of the board of directors, and the office is consequently one of great influence.

The directors and officers usually hold the bulk of the stock. Hence it is not surprising that the salaries of the latter are often exceedingly liberal.

CORPORATE POWERS

A corporation, like an individual, has certain civil rights. It may adopt a corporate name and seal, sue and be sued, appoint officers and agents, adopt by-laws and acquire property, real and personal. But governments early noted the tendency of corporations to gravitate toward monopoly, and have never accorded to them the full rights of individuals. Thus, the line of business in which a corporation may engage is strictly limited by its charter. If organized to conduct a milling business, it cannot open a bank. Unless expressly organized for that purpose, it cannot speculate in real estate nor hold more than is reasonably necessary to carry on the business for which it was organized. A corporation cannot, as a rule, enter into partnership with another corporation, a firm or an individual.

Rights of Stockholders

Each stockholder is entitled to a certificate showing the value of his stock, and, if a transferee, to have stock transferred to him on the books; to inspect the books of the company; to participate in dividends; and to vote at stockholders' meetings, having as many votes as he has shares of stock. Beyond this he has no control of the corporation, save that, where the officers violate the law or embark the corporation in a line of business beyond the scope of its charter powers, the stockholder may apply for an injunction to oblige them to keep within the law.

Dividends

Business corporations are organized for the purpose of gaining profits. Profits are the balance left after the payment of running expenses, the cost of improvements, accrued debts and interest on those not due, and a reasonable reserve to cover depreciation of the plant, and the payment of bonds as they come due.

The disposal of profits is largely within the discretion of the directors, who may declare a dividend or add the profits to capital.

In many corporations stock is of two kinds, common and preferred. The holders of preferred stock are entitled to a

fixed percentage thereon (as six per cent) before any dividends are paid to the other stockholders. If large and frequent dividends are paid, stock rises above par. For instance, a $100 share may sell for $107, or at a premium of seven per cent. If dividends yield but little the stock will fall below par. And if the company ceases to pay dividends altogether, the stock becomes worthless, except for purely speculative purposes.

Stockholder's Liability

A stockholder is liable to the corporation for any portion of his subscription which remains unpaid. Formerly he was in no sense liable to creditors for the debts of the corporation. But this rule has been changed by statute in most states. In many states a stockholder is liable absolutely for corporate debts, in an amount equal to the face value of his stock. And in any event, stockholders are liable where they have been guilty of acts fraudulent as to creditors. Suppose, for instance, a corporation be incorporated with a purported paid-up capital of $50,000, when as a matter of fact the subscribers have paid but 30 cents on the dollar for their stock, or the stock has been fully paid in, but a part of it is returned in the guise of dividends. Schemes of this sort are of frequent occurrence, and where known to exist a court will compel the stockholders to pay in the full face value of the stock, so that it may be reached by creditors.

Appointment of Receivers

If a corporation becomes insolvent its creditors or the directors or stockholders may apply to a court for the appointment of a receiver. Application may also be made where the directors are abusing their trust. If the application is granted the court names a person to take charge of the books and property of the corporation pending dissolution or reorganization. If there is not sufficient money on hand to conduct the business during the receivership, the receiver may issue "receivers' certificates," to raise the necessary funds. These certificates then become a first charge against the corporation.

Dissolution of Corporations

The statute generally fixes the period for which a corporation may exist. If not, the term will be fixed by the articles of incorporation. The corporation is dissolved by the expiration of the term. It may also be dissolved, either on the application of interested parties or of the attorney-general, for insolvency, nonuse of franchise, or for any of those abuses of power and arbitrary acts to which corporations are prone.

The method of dissolution is somewhat similar to that followed in case of partnerships. After all debts are paid, what remains of the corporation funds is divided among the stockholders in as equitable a manner as possible.

PART EIGHT

REAL PROPERTY

PROPERTY DEFINED

The word *property* is used in two senses, being applied both to objects, and also to the interest, right or estate which a person may have in objects. It may be corporeal or incorporeal, and real or personal.

As an object of ownership property falls into two classes: (1) land and things permanently affixed thereto, such as houses and standing trees; and (2) movables, or things not affixed to the land. Now a layman would call the first real estate and the second personal property, but the law looks at the subject in a peculiar way; hence certain explanations are necessary for a clear understanding of the subject.

ESTATES IN LAND

Real estate or property at law embraces only those estates in land known as freehold estates, because they were those by which lands were held by freemen under the ancient feudal system. They include only estates of inheritance (which descend to one's heirs) and estates for life. Lesser estates and interests in land, such as leaseholds and mortgages, are considered personal property. In this connection it should be noted that upon the death of a person leaving no will his real estate passes to his heirs, while his personal property, including any leaseholds and mortgages he may hold, passes to his administrator.

Fee-Simple

Estates in land are of two kinds: (1) estates of freehold and (2) estates less than freehold. Freehold estates again consist of two kinds: (1) estates of inheritance and (2) life estates. Now estates of inheritance are also of two sorts, estates in fee-simple and those in fee-tail. Formerly, lands were often tied up in such manner that they could not be conveyed to a stranger, but descended regularly in a family from generation to generation. This was known as the system of entail. But fee-tail estates have been abolished in most states. The usual and practically the only estate of inheritance with us is the fee-simple. It is created by conveying land to a man "and his heirs." The effect of such conveyance is to vest the absolute property in him so that he may deed the land, will it or leave it to descend to his heirs.

Life Estates

The owner of land may deed or will a life estate in it to another, upon whose death it will revert to the owner of the fee or his heirs. But a better-known class of life estates are those created by operation of law, such as dower, curtesy and homestead. *Dower* is the life estate which a surviving wife takes in one-third of the lands of her deceased husband. *Curtesy* is the interest which the surviving husband takes in all of the lands of his deceased wife. These estates have been abolished by statute in many states. In such states the statute has generally provided in lieu thereof a *homestead estate,* providing that land of a certain amount or value shall be exempt from levy for debts, inalienable unless both spouses join in the deed, and shall descend to the surviving spouse for life.

Estate for Years

An estate for years or leasehold is one for a definite time, as a month, a year, five years, etc. It is created by an instrument called a lease. The holder of a fee or a life estate may lease the premises for a term, in which case we speak of the period of rental as being "carved out of the fee" or "life estate," as the case may be. At the end of the term the estate reverts to the lessor.

Estate from Year to Year

This comes into existence where a tenant is permitted to hold over his term. A tenancy for a week, month, quarter or year then arises, continuing for successive similar periods until due notice to quit is given to terminate it at the end of a period. What constitutes sufficient notice is determined by the statute. This is the ordinary tenancy of city renters where there is no written lease.

Tenancy at Will or by Sufferance

An estate at will may be terminated at the will of either party. Courts look with suspicion upon alleged agreements of this kind, and the statutes of many states require notice to terminate the tenancy.

An estate at sufferance arises where a tenant holds over after the expiration of his term after notice to quit. Ordinarily the landlord cannot forcibly evict him even then, but must bring a proper proceeding and have him expelled by order of the court.

In connection with this classification of estates, note its definiteness. Each class has its characteristic features which mark it off distinctly.

Easements

An easement is a right which one landowner has to require another landowner to do or refrain from doing something on the latter's premises. The most well-known form of easement is the right of way—the right which one has to cross the lands of another. The right to use a party wall, to compel a neighbor to maintain a partition fence, and to light, air and view, are other instances of easements. Easements are required by prescription, grant or from necessity, as where a man has no outlet to a public road except by crossing his neighbor's land.

CONVEYANCES

A conveyance is an instrument in writing whereby an interest in real property is transferred. The instrument used in conveying a freehold estate is called a deed; that used in conveying a leasehold estate, a lease. Deeds are instruments under seal, and if executed for a consideration are contracts, of that solemn kind known as a contract under seal. If there is no consideration, the conveyance is a gift and the deed is described as a deed of gift. There are three ordinary kinds of deeds in use: (1) the warranty deed, in which the person executing the deed vouches for the title; (2) the quit-claim deed, in which he merely undertakes to convey such interest, great or small, as he may have; and (3) the mortgage deed, in which he merely conveys the property conditionally as security for the payment of a debt.

Conveyancers

A conveyance may be drawn by an attorney, an ordinary conveyancer or a private person. By far the greater number are drawn by the ordinary conveyancer, be he notary, justice of the peace or real estate broker. Practically all conveyances are drawn upon regular blank forms, and can be properly drawn by a layman if care is used. Since many conveyancers are extremely careless, especially in the matter of taking acknowledgments, it will pay the reader to learn as to the proper mode of drafting conveyances so as to attend to such matters himself.

Warranty Deed

The warranty deed will be first considered, as it is first in importance and usually conveys the entire interest in the property of the person making it. On the following page we give the ordinary form of the deed. Shorter forms are used in many states, but with a thorough understanding of the full form the reader will meet with no difficulty in using the shorter forms. Certain details need explanation.

The Parties. The parties are the grantor, or the one who makes the conveyance, and the grantee, the one to whom it is made. It will be readily understood that the grantor must possess such capacity as is required of parties to a contract. Thus minors, persons of unsound mind and, in some states, married women are incapable of making valid conveyances. But the reason does not hold in the case of grantees, and any natural person may be the grantee in a deed.

It is customary to give the party's occupation and residence in describing him, thus: "John Adams, merchant, of Faribault, Minnesota, party of the second part." This is to more certainly identify the party, for there might well be several of the same name.

If the grantor is unmarried, the word "single" or "unmarried" should immediately follow his name. If the conveyance is made by a married couple, that fact should be indicated, thus: "John A. Edwards and Mary Edwards, his wife," or "Mary Edwards and John A. Edwards, her husband;" placing last the name of the spouse who merely "joins in the deed."

The Consideration. The deed may be based upon either a good or a valuable consideration. I may give my son a parcel of land "in consideration of love and affection;" and I cannot afterward

question the conveyance on the ground that there was no value received, but my creditor may.

You will note in the form of warranty deed given below, the words, "the receipt whereof is hereby acknowledged." This is inserted as evidence of payment of the consideration. But it is not conclusive. It may nevertheless be shown that the consideration has not been paid.

Words of Transfer. These are "grant, bargain, convey and confirm." There is a little needless repetition here, and doubtless the words "grant and convey" would be sufficient. But unless the statute provides a shorter form, it would be best to use the full formula.

Words of Inheritance. Note the use of the words "his heirs and assigns forever." The purpose of these words is to convey a fee simple to the grantee. Hence a grantee should be careful to see that they are inserted, unless the intent is to transfer a life estate only, when the words "for the term of his natural life" should be employed.

Description of the Land. The description of the land should be minute and accurate to an extreme degree, so that it will be impossible to confound the premises sought to be conveyed with any other lands. The description is usually given in one of three ways, according to the nature of the original survey of the tract: (1) by government subdivisions, (2) by recorded plat or (3) by metes and bounds.

By Government Subdivisions. The central and western portions of both the United States and Canada were originally surveyed by the government in square townships of 36 sections, and land is there generally conveyed by section or subdivision of section, except such as is included in city or village plats. The form of description is something after this manner:

FORM OF WARRANTY DEED

This Indenture, made on the.....day of....., in the year of our Lord, one thousand nine hundred and....., between....., the party of the first part, and....., party of the second part, witnesseth:

That the said party of the first part, for and in consideration of.....dollars, lawful money of the United States, to him in hand paid by the party of the second part, the receipt whereof is hereby acknowledged, does by these presents grant, bargain, sell, convey and confirm unto the party of the second part, his heirs and assigns forever,

All that Tract or Parcel of Land, situate in the.....of.....County of..... and State of....., bounded and described as follows, to wit:

(Description)

Together with all and singular the tenements, hereditaments, and appurtenances thereunto belonging or in anywise appertaining, and the rents, issues and profits thereof.

To Have and To Hold, all and singular, the above granted premises unto the said party of the second part, his heirs and assigns forever.

And the said party of the first part, for himself and his heirs, executors and administrators, does hereby covenant and agree to and with the said party of the second part, his heirs, executors, administrators and assigns, as follows:

First—That the party of the first part is seized of the said premises in fee-simple, and has good right to convey the same.

Second—That the party of the second part shall quietly enjoy the said premises.

Third—That the said premises are free from encumbrances.

Fourth—That the party of the first part will execute or procure any further necessary assurance of the Title of said premises.

Fifth—That the said party of the first part will forever warrant and defend the title to said premises.

In Witness Whereof, The said party of the first part has hereunto set his hand and seal the day and year above written.

Signed, Sealed and Delivered in the Presence of
Edward H. Drew.
James L. Lovell.

John Doe. Seal.

"The *North half (N. ½)* of the *Southeast quarter (S. E. ¼)* of Section Number *Seventeen (17),* in Township Number *Thirty-four North,* and Range Number *Nineteen West (Twp. 34, N., R. 19)* of the *Third* Principal Meridian, embracing *Eighty* acres more or less, according to the government survey thereof on file and of record in the office of the *Register of Deeds* of said county." See LANDS, PUBLIC, page 1582.

By Recorded Plat. Where property is laid out in lots and blocks, as in the case of cities and villages, and often at summer resorts not included within municipal limits, the owners of the property must file a plat of the proposed subdivision in the office of the proper county official, in most states called the register of deeds. Lots in such subdivisions are conveyed by a description substantially as follows: "Lots numbered *Seven (7) and Eight (8),* in Block numbered *Thirteen (13),* of *Green & Doyle's* Addition to the *City of Aurora,* in said county, according to the Plat of such Addition on file and of record in the office of the Register of Deeds of said county."

By Metes and Bounds. Description by metes and bounds is effected by taking some point in the boundary of the tract as the "point of beginning" and describing the boundary around, in one direction or the other, back to the point of beginning.

It is in use in the portions of the United States and Canada which were settled before the plan of general government surveys was hit upon. It is also used in the newer districts where an irregular tract, not conforming to government subdivisions, is to be conveyed. In the latter case the corner of a government subdivision is generally taken as a "point of beginning."

The form of description may be as follows:

"Beginning at the southeast corner of Section Four in Township Number Eighteen North and Range Nine West of the Fifth Principal Meridian (Sec. 4, Twp. 18 N., R. 9 W., 5th P. M.), thence West Seventy (70) rods, thence North Forty-seven (47) rods, thence East Seventy (70) rods to the East line of said Section Four, thence South, following said East line, Forty-seven (47) rods to the point of beginning, and containing twenty and ninety one-hundredths (20.90) acres, more or less."

Appurtenances. You will note in the form of Warranty Deed given above that the land is granted with all its "appurtenances." This means that the grantee shall have not only the land, but also the standing timber, buildings and other things affixed to the soil, and easements, if any, belonging to the land. Suppose, for instance, the tract conveyed was not on any highway, but a right of way across the lands of another connected it with the highway. This will pass with the grant as an "appurtenance."

Covenants. We now come to the covenants. These are usually five, and by them, as we have seen, the grantor warrants that he is the owner of the very estate he purports to convey, that there is nothing outstanding "against the property," that he is at the time laboring under no disability which prevents him from making a conveyance, that the grantee shall not be disturbed in his possession, and that he will respond in damages should the grantee's title be attacked.

A word may be added as to the covenant against encumbrances. Encumbrances include public highways, private easements, claims of dower, etc., and outstanding judgments and mortgages. If a mortgage exists, it should be specifically referred to in the deed, and, if the grantee "assumes" it as a part of the bargain, the duty of the grantee to pay it and save the grantor harmless should be set forth.

Execution of Deed

This consists in signing, sealing, attesting and, for the purpose of fitting it for registry, acknowledging the deed.

Signature:—The grantor must write his name with ink in the usual place at

the foot of the deed. The signature should consist of the first name, initial of middle name, and surname. If the grantor cannot write, another may write his name and the grantor may make his mark, thus:

his
Max X Wasser
mark

If the grantor is too weak to make the cross, it may be made by another while he holds the end of the penholder.

In most states the law requires that where the grantor is married, the husband or wife must also sign the deed in order to convey a clear title. The signature of a woman should not show her state in life, nor should a married woman in signing use her husband's Christian name. It is improper to sign "Miss Anna L. Jones" or "Mrs. Fred D. Andrews." The parties should sign "Anna L. Jones" and "Gertrude Andrews."

Seal:—The seal is properly a piece of sealing wax pressed on, or a piece of paper wafered on at the right of the signature.

In many of the Southern and Western states a printed seal, or a *scrawl* with the word "seal" written within it, is regarded as equally good. There must be a seal opposite the name of each signer.

Attestation:—Although attesting witnesses are not required in all states, they are in most, and a careful conveyancer will be sure that a deed is attested by two witnesses, in the presence of the grantor. This is extremely important in case the grantor afterward denies his signature or it is denied by others after his death. The witnesses should be disinterested persons. A minor may sign as a witness.

The Acknowledgment

This is made by the grantor before an officer qualified to take acknowledgments, usually a notary or justice of the peace, the grantor exhibiting the deed to the officer, and stating that its execution is his free act and deed. The officer then affixes his certificate and signs it officially.

Form of Certificate Acknowledgment

State of *Minnesota* }
County of *Rice* } SS.

On this *tenth* day of *June,* in the year of our Lord, One Thousand Nine Hundred and *Fourteen,* before me, a *notory public* in and for the county aforesaid, personally appeared *John A. Edwards and Mary Edwards, his wife,* to me personally known to be the same *persons* described in and who executed the foregoing instrument, and who acknowledged to me that *they* executed the same as *their* free act and deed.

Charles J. Andrews,
Notary Public.

Notarial
Seal

Registration of Deed

After the deed has been acknowledged, it should be at once filed for record with the Register of Deeds or other proper officer. For if the grantor is a rascal he may resell the land to someone else. And if the latter has no knowledge of the prior deed, and files his deed for record first, the first purchaser may lose the property and be left without remedy.

The record of a deed properly acknowledged is notice to all the world of the conveyance, the statute making it the duty of every person contemplating the purchase of land to ascertain at the registry of deeds the state of the title. But a register has no right to put a conveyance on record, unless it is properly acknowledged. The purchaser should be exceedingly cautious, therefore, that this part of the execution has been properly performed in every particular.

Quit-Claim Deed

The elements of a quit-claim deed are the same as those of a warranty deed, except as to the covenants. When the purchaser of land is doubtful as to the rights of some third person, as, for instance, a relative of the grantor or one who may have held a tax deed on the premises, he may say to the grantor, "I will take the land if besides giving me

your warranty deed you will also get D," meaning the third person, "to give me a deed." This deed from a third person conveys merely whatever title he has in the land; and he warrants nothing, so it contains no covenants, and instead of "grant, bargain," etc., the operative words are "remise, release and forever quit-claim."

Mortgage

A person in need of money may wish not to sell his land, but to secure a loan by pledging it. This is accomplished by an instrument, the first part of which is in the form of a deed and purports to convey his land absolutely, followed by a *defeasance* clause, providing that the conveyance shall be void if the grantor (here called the mortgagor) pays a certain sum.

Mortgages very generally contain two other clauses: an *insurance clause,* providing that the mortgagor shall keep the buildings insured in a specified sum and assign the policy to the mortgagee, and an *interest clause,* providing that in case of default in the payment of an installment of principal or interest, the mortgagee may require payment of the whole interest and principal at once.

Discharge of Mortgage. Upon payment of the debt which the mortgage is given to secure, the mortgagor is entitled to a discharge. This is a formal instrument reciting that the debt has been fully paid. It is recorded in the registry of deeds and has the effect of cancelling the mortgage on the record.

LANDLORD AND TENANT

This relation is created by a lease. Leases for short terms are not required to be in writing, but the statutes of most states require that a lease for three years or more shall be in writing, while in some states a lease for a year must be written. Covenants are inserted as the parties may agree, it being common to covenant that the landlord shall repair buildings and renew the lease at the end of the term, and that the tenant shall pay a certain rent, pay taxes and assessments, not assign the lease nor sublet the premises, and surrender the premises in good condition at the end of the term.

Defects, Repairs and Waste

As a rule the tenant takes the premises in the condition in which they are when the property is leased. Where he fails to require a covenant against defects he cannot complain, except as to dangerous defects of which the landlord knew, but failed to inform him.

He must keep the premises in repair unless the landlord has covenanted to do so, and return them in the same condition, ordinary wear and tear excepted, as when he received them.

He must not waste the premises, that is, cut timber, except as required for repairs or fuel, or tear down buildings.

Assignment and Subletting

Unless the tenant has covenanted to the contrary, he may assign the lease or sublet the premises.

If he assigns, he ceases to have any interest in the premises, though he remains liable upon his covenants unless the landlord consented to the assignment.

The tenant may also sublease unless he has agreed not to do so. Leasing a part only of the premises, or leasing the whole for part of the term only, is a sublease. The sublessee is tenant of the first tenant, not of the landlord.

PLAN FOR THE STUDY OF BANKING

I. Functions of a Bank

1. To receive funds on deposit
2. To loan money
3. To issue notes of circulation. (In the United States confined to national banks)
4. To act as a collection agency

II. Kinds of Banks in the United States

1. National Banks
2. State Banks
3. Loan and Trust Companies
4. Savings Banks
5. Private Banks
6. Postal Savings Banks

III. Bank of England

IV. Continental Banks

1. Bank of France
2. The Imperial Bank of Germany

V. Early History of Banking

VI. History of Banking in the United States

1. Bank of North America
2. Bank of the United States
3. State Banks
4. National Banks

QUESTIONS ON BANKING AND CURRENCY

What bank has the largest holdings of gold? 238.

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What is the smallest sum of money that can be deposited in a postal savings bank? The largest sum? 2332.

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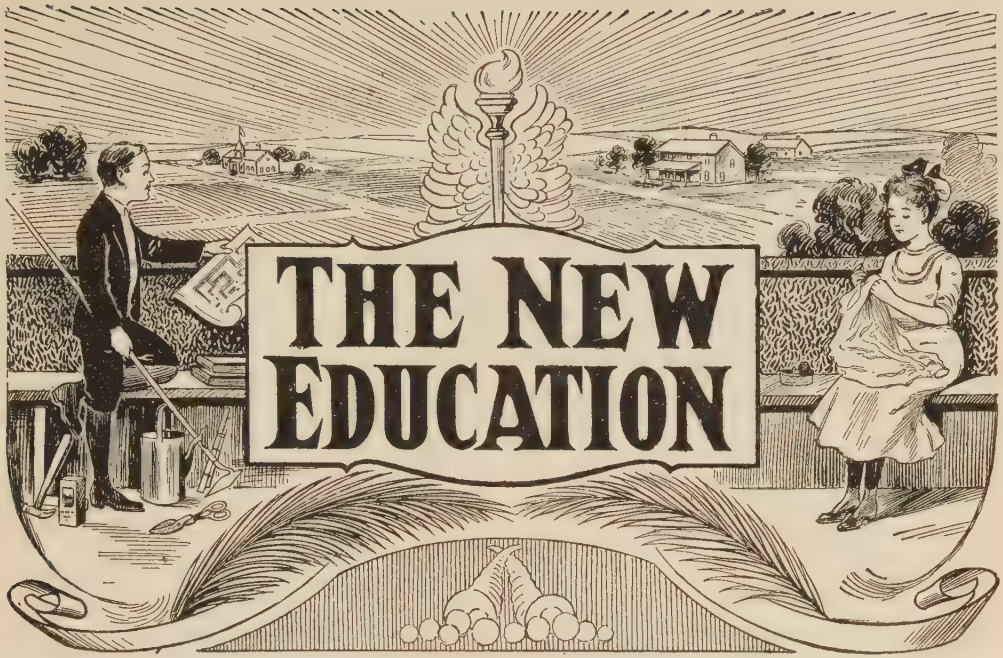


In this and following articles, we wish to consider how best to increase the efficiency of our schools. Recently there has been a great change in school methods, and this is especially true of rural schools. Educators often speak of these changes as being revolutionary in character. A new meaning has been read into education and a new view point gained from which to consider education in its relation to life, and how best to obtain the ends sought. It is now necessary for teachers to make a study of new methods—methods which were not known even a few years ago, but which are now as necessary to success as the traditional methods of teaching the common branches.

At present the coöperation of home and school is imperatively needed and efforts are all directed to that end. The new education constantly has the home in mind, since the home has far greater interests at stake than the schools. Teachers come and go, but the outlook on life that is to influence children, enrich rural life, and make it once more responsive to rural needs is the object of the new education and directly concerns the welfare of the home. We therefore have prepared these articles for the home not less than the school believing that they will acquaint patrons with the needs of the school which, when supplied, will enable teachers to apply the new methods and make their school truly representative of advanced methods.

Rural Schools

We shall take up first of all the problems connected with rural schools. No subject has so engaged the attention of educators generally as that of the rural schools; this is perfectly natural. Agriculture is the foundation of our national prosperity, and about half of our population is engaged in its pursuit. One and all, in town and country alike, are concerned in whatever effects rural life,

and a great many think that the rural school is the most important factor to be considered in this matter. This is one of the conclusions of the commission appointed by the United States Government to study rural life. This question is of special interest, for the most momentous period in history is approaching. How shall we as a nation prepare for that emergency? Whatever differences of opinion we may entertain, every thoughtful person will agree that national welfare depends on the ability and willingness of its citizens to perform their part. This is the concern of education; if the children of a nation be neglected, decadence will result; if, on the other hand, their welfare be safeguarded, national prosperity may be expected.

The School System

The school system of a nation is the agency that has been evolved to promote the public education of its children. It is impossible, however, to separate the public education of children from the education of the home. Of necessity, these two educational fields overlap; in fact, we now see that home and school must more cordially unite their efforts. The home must concern itself more with the school; the school must shape its education more in accordance with the interests of home. A sense of this truth is the explanation of that great forward movement in education that is revolutionizing school methods, that has already effected great improvements and promises a more glorious future.

It will not be long before this coöperation will be provided by a general extension of the California law, just enacted, which provides for the appointment of a teacher to spend her entire time to work in the homes of the pupils, instructing children and adults in matters relating to school attendance and preparation for school; also in sanitation, in the English language, and household duties such as purchase, preparation, and use of food and clothing, and in the fundamental principles of the American system of government and the rights and duties of citizenship.

Interests Involved in the School

Few realize the totals of the figures that express the magnitude of our public school activities. According to the United States Bureau of Education, about five million dollars are required to meet the running expenses of our schools each school day. The far larger part of this outlay is for public elementary schools. Nearly twenty five million pupils, of all grades, are attending these schools, and are taught by nearly one million teachers. About four-fifths of the total attendance is in elementary schools. These figures, great as they are, increase from year to year, with the increase of wealth and population. How many realize that the present school population of the United States is more than the total population of our country in 1850? The number of boys and girls attending the elementary schools, if placed four abreast, would make a column stretching nearly across the United States, from the Atlantic to the Pacific. This is the army on whose efficiency depends the future welfare of our country. Not to supply these children with the best education we can give them, is to rob them of their birthright, and to lower our national ideals.

What is Education?

The very meaning of education has changed along with changing methods. In former years, education meant the possession of a certain amount of "learning," or a given amount of "discipline" generally summed up in the word "culture." But according to the present ideas, the aim of education is to increase human efficiency. This is in keeping with the spirit of age. In manufacturing, commercial, or professional life, the one that succeeds is the one that is efficient, that is, the one fitted to perform his part, not only possessing requisite knowledge but able to practically apply it. A new and more vital aim is thus given to education,

and we demand that it shall lead to a more efficient life in the home, the state, and other social institutions; that it shall help the recipient to do more effective work in whatever he undertakes; that it shall result in greater enjoyment and appreciation of the finer values of personal experience. It is not, specifically, learning, discipline, nor culture (though these are always present), but training that conduces to efficiency in life; and this affords us a new view-point from which to consider education. The education given in any type of school must be correlated to the life and needs of the community which it serves. To an appreciation of this fact, is due the great educational awakening that is changing rural school methods.

Educational Progress

Probably no period in history has witnessed more rapid advance in every line of progress than recent decades. A mere review of results obtained is exhilarating. The future seems to promise results even more wonderful. This is true of school methods. People yet in middle life find themselves utterly bewildered when their business takes them into a modern city high school. There are rooms devoted to manual training and domestic arts; there are research laboratories of various kinds; little folks are enjoying kindergarten exercises, girls are learning sewing, and boys are busy with carpenter tools.

Rural Schools

This surging wave of progress has now overtaken the rural school. In virtually every state of the Union, changes almost revolutionary in character have been under way ever since the century opened, and the teacher who fails to shape his teaching accordingly is in danger of failing in his work. He has not kept up with the times. It is not simply methods of teaching that are changed; in many sections old buildings have been abandoned, new and improved ones erected. In most states there is a movement in favor of consolidating rural schools, transportation wagons by the thousand are being used, and good roads are prepared for their use. Normal schools, colleges and universities, educational associations, the United States Department of Agriculture, and the public press have manifested aroused interest in the education of children. New plans, new methods and ideals, are in evidence.

In 1912, a new division was created in the United States Bureau of Education for the specific purpose of advancing the interests of the rural school and country life. The aid of the government is being extended more and more effectively to advance new educational methods in rural schools. The recently enacted Smith-Hughes bill is for the express purpose of assisting states to furnish expert aid to rural schools so that every school can put in practical operation the methods demanded by the new education in the home-making activities of rural life. Methods not necessary for the teacher to consider a few years ago, are now vitally necessary. For the first time in decades, the whole nation is turning with interested concern and constructive purpose to the rural school. The question for every school teacher to ask himself is whether he is alive to present day methods.

What This Change Means

The change that has come over rural school methods is in keeping with advance in general. The old order has changed in every line of activity. Farming methods are vastly different from what they were a few years ago, business can not be carried on as it was a decade ago. We live in the days when a whisper can be sent around the world, when the air and ocean depths are being navigated. Conditions of life are not the same as in former years. Naturally, new methods in education are demanded.

But rural school methods and equipment, all excellent in other days, were allowed to remain on the same plane of development as that reached in days pre-

ceding the self-binder, when trolly systems were unknown, automobiles unthought of, and the semi-weekly mail was deemed the acme of postal facilities. This state of affairs is not in keeping with the progressive life of the present. It is antiquated, we demand twentieth century methods, modern equipment, and teachers who measure up to the needs of the day and have caught the vision of efficiency applied to education.

Rural Methods

One mistake in school methods of former years was in thinking that methods in town and city schools were the best also for country schools. On the contrary, the key note of modern methods is that education must be correlated to the home life of the children. Rural conditions are so different from town conditions that the methods employed in rural schools must be different in many respects from those of town and city schools. This is a vital point for the rural teacher to grasp. He must shape his teachings to conform to the requirements of a rural community. The road to success for the rural teacher is to teach in terms of rural life, agriculture, farm life, home surroundings.

The Work of the Rural Teacher

No class of teachers in the United States has a more important work before them than rural teachers. You are called upon to make the school once more the center of rural life in the community. Fifty years ago it was such; then it fell behind in the race; it is yours to bring it up to its rightful place. It is not sufficient to simply bring up arrears, you are to make it the directive agency of rural life. You must make its teachings so accentuate the possibilities of country life that you will inspire the boys and girls intrusted to your charge with a desire to make them real.

This calls for new equipment, new methods, teaching new branches; and above all it demands that you shall catch the enthusiasm of new ideals, take the wider outlook that comes from higher planes of thought, be quick to make your own every practical suggestion offered by earnest educators that have studied every phase of the question, and work as men and women that feel their responsibility. But this course wins. It has proved its value in hundreds of instances in widely scattered sections. It has taken charge of communities that were at a low ebb, where churches were abandoned, schools inefficient, farmers discouraged, the boys and girls hurrying to the nearest city as soon as able to care for themselves, and has effected changes marvelous in their results. In those same communities we now find flourishing schools, prosperous citizens, and city migration stopped. Is not this something worth while? Will you not work and plan for such an end?

An Earnest Talk to Teachers

Do you know the work you are doing is far more responsible than if you were simply one of the teachers employed in a town or city school? On you, personally, is resting a great responsibility. Do you realize the importance of your work? Think it over carefully. You are not simply to instruct a few boys and girls, but you are to make your school an influence in the lives of your patrons; you are to make it a vital force for rural progress. This calls for personal work, study and sacrifice. But if you can in some way catch the vision of possibilities ahead, work as one anxious to be of service, your rewards will be greater than the salary you receive.

Do not forget that the activities of the school exist for the benefit of the community, not the activity of the community for the benefit of the school. Fortunately, the real interests of both are the same, but one's mental attitude shifts according to one's view-point. This change of attitude, the wider vision that comes from a more elevated plane of observation, is the secret of the new vital, energy-giving ideals of rural school

methods which are sweeping the country, though much is yet to be done. Every true teacher must assist, and bring to his work the enthusiasm of a great purpose. Are you doing this?

The Welfare of Our Country

The work you are to do is of vital concern to the welfare of our country, more so in reality than the work of teachers in cities. You minister at the very fount of national life. No country in the world is more interested in maintaining a high standard of rural life than the United States. We are still a nation of magnificent distances. We are yet young in national history. Our population, though exceeding a hundred million in number, is small to what it will be in the near future. We are most vitally concerned in all that pertains to rural welfare, for a large part of our population will always be found in rural sections, and, directly or indirectly, the prosperity of our country depends upon agriculture. Every means must be used to maintain a high standard of thought and life in our rural sections. This is said to be the great problem before our country, and it is the problem that all rural teachers must make their own. Does not this appeal to you? What can you do to assist in this matter? Into your hands is committed the training of those who will shape country life in the near future.

Urgency of the Work

Owing to the great many causes, rural life conditions have not been at all satisfactory in the United States. This became so serious that our national government appointed a commission to study into the matter. It was one of its conclusions, that started the present great forward movement in rural school matters. It amounts to an official recognition of the importance of the rural school. Since that time progressive teachers and wide awake communities have been working in unison for better rural schools. This movement will continue until our whole country shall experience its beneficent effects. We believe, fellow teacher, that you desire to acquaint yourself fully with the advanced conclusions of educators on these new methods.

Our Purpose

We are therefore taking a general survey of rural school conditions. We realize that you can not at once change conditions in your neighborhood. You will have to make the best of present surroundings and equipment. We can however suggest improved methods of using your present equipments, we can tell you of new ideals for which you are to work. This will give you the enthusiasm of a new purpose, the advantage of a wider outlook. It is a mental tonic to read of the triumphs of others. Teachers are no exception to the general rule that we are in bondage to customs. We use old methods because we are accustomed to them. We need to change our mental attitude and be quick to respond to more effective plans. This part of our work is especially applicable to rural schools, since town and city schools, to a large extent, utilize advanced methods, we have, however, a message for them also, since not all town schools are taking full advantage of new methods; our aim is to assist conscientious teachers everywhere.

To the Home

If the work of the community upbuilding, and consequent improvement in rural schools is to be a success in your neighborhood, you must coöperate with the school. You are surely willing to do this since it is the good of your community, the happiness of your home, the welfare of your sons and daughters that is sought. It is going to require more money for school purposes. Give your assistance. It will necessitate your active assistance in home projects, it will be necessary for you to take a part in community activities centering in the

school building. What greater work can you plan to do?

There are great possibilities opening before rural life. It should become in every way, more complete. To this end every advance in science is contributing. To fully realize future ideas, work from all is imperatively demanded. You should be quick to second the efforts of the school in this matter. If you desire that your sons and daughters shall stay in the country, you must show them that rural life is rich with undeveloped resources for larger life. Certainly one of the best means for effecting such a result is to broaden the foundation of their education, that they may enjoy a wider outlook on life in general. Something must be done to impress on youthful minds a sense of rural possibilities.

Questions for Consideration

1. Is the rural school in your section used as a social center?
2. If not, what can you do to bring this about?
3. How much has land increased in value in your district within recent years?
4. Have school buildings, grounds, or school equipment increased?
5. Have the rural schools in your neighborhood kept pace with town schools?
6. How many farmers from your section have moved to town within recent years? Did they go for lack of good schools? What class of farmers took their place? Do you think there has been a change in the general tone of rural life in your section?
7. Do you think country schools can be made as efficient as town schools? If that be done, will it have a tendency to improve rural life?
8. Are you in sympathy with the new educational view point set forth in this chapter?
9. If not, why not?
10. If yes, what are you doing to advance them?

"Be what nature intended you for, and you will succeed; be anything else and you will be ten thousand times worse than nothing." —*Sydney Smith.*

"To be poor in a wealthy country, to be sick in a good climate, to be inefficient among a progressive people, is a sign of unwise educational methods. . . They were not taught to battle with the world or meet life's emergencies.

"Be not simply good, be good for something."
—*Thoreau.*

"He who knows what secrets and virtues are in the ground, the waters, the heavens, and how to come at these enchantments—is the rich and royal man."
—*Emerson.*

"Know the full value of time, snatch, seize, and enjoy every moment of it. No idleness, no procrastination; never put off until tomorrow what you can do today."
—*Earl of Chesterfield.*

NEW PREPARATORY WORK

You are anxious to succeed in your school. Perhaps you have prepared especially for the work, at any rate, as far as formal education is concerned, you feel qualified for your position. You have thought over your prospective duties and have read a number of books treating on educational problems, but unless you have been fortunate in your selection, they have not given you the information you need to satisfy present ideals. However, you know something of the distinctive problems of the rural school and are anxious to do your utmost to be of real service to the community, and help the boys and girls to a larger life. Let us suppose further that you are not to teach in a well organized consolidated school, but that you are to have charge of a one-room school.

Beginning Work

If you believe that earnest workers, here and there, are accomplishing a great work by utilizing the newer methods and are truly anxious to achieve like success, you are willing to adopt advanced methods. You may be sure that other ambitious, wide-awake teachers that have caught the spirit of progress are also doing what they can to spread the gospel of new methods. This will require more work on your part, and such work in the new education, begins even before your term opens.

Community Survey

You have noticed advice to the effect that you should visit the scene of your future work a few days before your term is to open so as to learn a few facts about your district; to examine the records left by the previous teacher, and to get a line on things in general. But if you are a stranger in the community, this program is far short of what you are now asked to do, which is to make a survey of your district. The word "survey" means gathering and systematizing a great mass of information concerning your field of work. You are to make a study of all the related factors that make for or against the happiness and prosperity of your district.

It includes such topics as the extent of the general and school population, the sanitary conditions in the individual homes and the district, the prevailing methods of home and farm management, the facilities for inter-communication—roads, telephones, mail service, and the like,—the ownership of land, the extent of tenant farming. In short, all the facts that have a vital bearing upon the community life. Without such knowledge it is impossible to begin effective work. This is true, no matter where your school is situated, whether in the corn belt or in the states that specialize in fruits, dairying or cattle, cotton or wheat. This work is not as difficult as it sounds, requiring only patience and tact. It will not take a great deal of time for your district is quickly surveyed.

The Value of the Survey

Probably you do not realize why this survey is necessary. One of the first principles in modern efficient management is to gather full and accurate records. When experts reorganize a business, this is the first thing they do. Modern school management is efficiency applied to the business of teaching, you can not be too well acquainted with your community and its needs. The survey supplies you with necessary data. But this is not all. This information, gathered, systematized, and studied, will prove of the utmost service in your work.

Educational experts in the state will be able to advise you on the special problems of your district. If the teachers of your township or county are like-

minded, the foundation is laid for successful, united work, leading up to a consolidated school. You have at command information of greatest value in preparing for your work in agriculture, home economics, or the broad general lines of sanitation; all of which will be a part of your new curriculum. No general course in these topics, no matter how well prepared, will answer all the special needs of your district. To take advantage of local conditions gives zest, vitality and freshness to your work, which will generate like interest on the part of your pupils.

Its Worth Has Been Proved

The best evidence of the value of this survey is the fact that it has proved a success; many teachers have taken advantage of it. Remarkable success has often attended their efforts. So, unless you find this mass of district information already at hand, gather it, make a study of it, then see what you can do in your school work to fit the boys and girls to act well their part in community life as it exists around you. Notice the wider outlook. Your work is no longer confined to children; you are to labor to improve community life in general. You do not pose as a reformer or uplift worker, but your school, the instruction given, the spirit there engendered, like the leaven hidden in three measures of meal, is to leaven the entire community, in accordance with the new view of effective school work. It is now a matter of life for life, not simply a matter of childhood for childhood.

Plan for a District Survey

The survey here recommended, in most cases, can be initiated, not completed, before your term begins. Children may help gather much of the data required and in doing this, means of interesting them in practical school studies will be discovered. Numberless problems in arithmetic can be worked out, all correlated to actual conditions in your district. In geography, too, what is better to interest the child than a large map of your district, on which will be shown the farms, homes, etc., details of which you have gained? The plan to be followed will vary according to the nature of the district but the following are some of the suggestions from the Bureau of Education:

Survey

1. Number of farmers who own the farms upon which they live.
2. Number of tenant farmers.
3. Number of miles of well kept roads; poorly kept roads.
4. Average size of farms.
5. Number of modern homes.
6. Number of modern barns.
7. Financial conditions of the district; the special tax voted for school purposes.
8. Number of automobiles.
9. Total number of acres of wheat, hay, apples, alfalfa, corn, and other important crops. Total yield. Average yield. Highest yield per acre. Lowest yield. Value of crops.
10. How many fruit trees were sprayed and pruned? How many farmers treated their seed potatoes and wheat? How many farmers carefully selected and tested wheat or other seed?
11. Total number of different kinds of farm implements, as reapers and binders, etc. Care taken of farm machinery?
12. Total number of breeds of: Horses, mules, beef cattle, dairy cows, hogs, sheep, poultry. Value of each and total value of all.
13. How far to the nearest market?

School Building and Grounds

In addition to this study of conditions in the district you must make a special inspection of the building in which you are to teach and its surroundings. This implies a careful study of school grounds, the well, if there be one, outbuildings, etc. As is well known, Normal Schools, here and there, have

built model school houses and surrounded them with model grounds. Further, still, in every state of the union, and in many districts of the state, splendid, commodious and well equipped buildings have been erected and surrounding them are ample grounds. But it still remains true that the majority of rural school buildings, in all sections of the country, are far from what they should be. The probabilities are that the building in which you are to teach is one erected before science had anything to say about lighting, heating, or ventilating. You will have to accept conditions as they are, but you are not fitted for your position if you propose to remain satisfied with them, making no effort to arouse your district to needed reforms.

What to Note

In inspecting the building, note should be made of the conditions of the floor, walls, windows, and out-buildings, as to cleanliness; also whether repairs are needed. This careful inspection can be made of value to you in more ways than one. Acquainted as you are with present day needs, you may discover some means whereby at very slight expense some alteration can be effected which will help you in your school work. Or it may disclose some absolutely needed repairs. Yet another reason is that knowing the exact conditions of your building, you will be better able to plan for future alterations which will modernize the building. The examination of the grounds is necessary, since well kept grounds are now considered a necessary part of the school plant. They must be made attractive to exert a helpful influence on the children. They must be put in order before your term begins. If this is not done, you should enlist the interest of the larger scholars soon after the term opens, take a Friday afternoon, and have a clean-up day.

Formerly, it was a part of the rural teacher's duties to serve as school janitor, but such are the requirements in all schools that wish to give an education up-to-date, that the district cannot afford to have the teacher devote his time and energy to work of such a nature. The teacher needs all the time that is free from the actual school-day to prepare for the succeeding day's work, and to take needed exercise and recreation. Arrangements should be made that will relieve you of this duty. If you can do no other way make arrangements to have it done, so as to save your energies for school work.

Sanitary Condition of the House

Another result of this careful inspection is to acquaint the teacher with the sanitary conditions of the house and grounds. The modern school is coming more and more to concern itself with the health of the community. The country teacher must share responsibility with trustees in regard to the sanitary conditions of the school house. Being a leader in the community, the teacher's example is all important. School room sanitation should be measured by that of the best hospitals, and a teacher's standard, by his hatred of dirt, decay and neglect. True enough, a teacher should not be expected to keep the school room clean and in a sanitary condition, but if such is your position, rise to the necessities of the case, and constitute yourself a sanitary commission, teaching by example.

This, however, is only a part of what will be needed if you are anxious to measure up to the requirements of the present. Take pride in having your school room neat. You will not allow dirt in corners, or under desks. You will not tolerate smoke begrimed walls and ceilings, loose and discolored paper, dust laden black-boards, ledges, and erasers. This will require constant oversight on your part, perhaps some work. But how otherwise are you going to impress lessons in neatness and order on your pupils? If you can once make them, and through them, the community generally, take an interest in their school building, you are laying the ground for that ideal building for which you are to work.

Thus it will be seen that more is required of the teacher before actual school work begins. But the earnest teacher is not going to shrink from it, since it is the starting point for more effective work. You are now acquainted with your community and its needs, you are prepared to plan for effective work. You can make the most of your present equipment and can plan an appeal to the best elements among your patrons, for such buildings, grounds and equipment as will enable the community to take front rank in educational matters. But it will be necessary to consider modern requirements as to building and grounds, so that you can base this appeal on intelligent grounds. Most communities make liberal response when convinced that the welfare of their children is concerned.

Co-operation of the Home

There is surely no reason why the homes should not heartily co-operate with the teacher in the subject matter of this section. You also are interested in gathering in a concise form all details as to rural life in your community that will prove of assistance. You should be willing to work to improve the immediate surroundings of the school. There is where your children are to gain the education that is to color their concepts of rural life. You should be willing to do what you can to make this education of such a nature that they will gain a truer perspective of rural life and its possibilities. You also should be interested in learning what is required to place your school in the front ranks of efficient schools.

Questions for Consideratioı.

1. What were the conditions in your district when you began your work? Were they good, bad, or on an average?

2. Did you make a survey of your district? Do you know what the total attendance should be? What the school tax rate is? The number of tenant farmers?

3. What was the condition of the school grounds, building, and out-buildings?

4. From facts learned, what is your best plan to bring about an improvement?

5. You have of course studied your district. What part of community work do you think most important to take up?

6. How about sanitary conditions in your district? Can you do anything in your school work to improve matters in ventilation? In water supply? (Study over this question.)

7. From what you have learned about crops, etc., would it not be well to ask the agricultural professors in the state university to suggest some special instructions which you could introduce with good effect in your school.

8. Can you introduce any special features in your home economics class that will be helpful in the community?

9. How about Janitor service in your school?

10. Do you see any good way to utilize the agricultural facts as to crops, stock, etc., brought out in your survey, with the teaching, in, say, arithmetic? Do you not think doing this would vitalize this study in your school? In still other ways can you not utilize the facts you have gained?

NEW EQUIPMENT

You have surveyed your district, organized your school, and started your work, already the distinctive problems of rural school work are growing upon you. You realize the school must do its part in making country life more enticing, more beautiful, and more joyous. It must meet the general needs and longings of the country people. It must be made an institution in which all are interested, through which all may coöperate. The school house door must swing open freely to all who would work for the public good, and it must be so constructed as to invite to its shelter all who seek for a larger vision in anything and everything that may contribute to the community welfare.

How to Begin

As one filled with new ideals, you desire to work for such an end in your district, but effective work in this direction calls for new, or at least improved, buildings, new grounds, new equipment, and a new community spirit. How shall you set about this work? After becoming informed, the first thing to do is to arouse public conscience, for the school authorities can go only as rapidly as the community is willing. Begin with the children. As soon as they are directed to see conditions, they talk about them; father, mother will hear. Have language lessons, arithmetic lessons, drawing lessons, construction lessons on model school buildings, repairing old buildings, attractive school grounds, or any other of the subjects that needs attention.

If you are working for a new or remodeled building, create a sentiment for one that will be large enough for a community center and so arranged that it will be convenient for social affairs. Study plans so that you will have some practical and concrete ideas on the subject. Generalizing will not go far. Get the patrons to visit the school so that they may see conditions as they are. What you have to do is to realize yourself, and strive in every way to impress on the community, the fact that the secret of keeping more boys satisfied with the farms depends largely on the character of the country school house and its surroundings. Have you formed clear ideas of what you want? In a general way, you know that to meet modern requirements, the average school house and its surroundings need to be greatly improved. Let us see what those who have made a study of these matters advise.

School Grounds

Have you noticed that modern efficiency methods always insist on beauty in the surroundings? The grounds facing large factories are as tastefully arranged as well kept lawns. Rural depots are made attractive with flowers and shrubbery. The reasoning is very clear. Beauty of surroundings exerts an inspiring influence. This principle is just as effective in the case of school grounds. Beauty in the school plant has a positive value, not only as a setting for the education of children, but as an inspiration to the entire community.

Unless grounds are commodious and tastily arranged they will not answer present day needs. For many purposes all deemed essential now, but formerly unthought of, commodious grounds are a necessity. Arrangements must be made for school gardens, ample play spaces and instead of unsightly grounds, unfortunately common at the present, the new ideal is to have the lawn that the house faces adorned with trees, shrubbery and flowers.

Area of Grounds

There is, of course, no rule to determine the exact acreage of the school

grounds. The number of pupils and games in vogue in the neighborhood, the number of games that can profitably be played at one time, the size of the school-farm and school-garden, the amount of space that should be reserved for trees, lawns, flowers, shrubbery, outhouses, wagon sheds, and open-air classes—all these must be taken into account. For any one-room school with, or with the possibility of, from fifteen to twenty-five pupils, two acres at the very least should be provided, and this acreage should be increased with the increase in attendance. Some states provide by law that rural school grounds shall not be less than two acres in extent.

Shrubs, Vines and Flowers

The problem of beautifying the grounds need not be postponed to the new grounds and buildings. The teacher can do a great deal with present grounds. The larger boys and girls, in fact the entire community can be interested. This would tend to revive the community spirit and pleasant surroundings exert a great influence for good. Every care should be used to have the entire school-plant—the buildings, the grounds, the interiors, and immediate approaches, the background—as beautiful and as attractive as possible. This will require much thought, constant attention, and sometimes a little money.

At every school a reasonable amount of space just in front and usually a narrow strip around the sides, of the building should be left for grass, flowers, and shrubs. They should be planted and kept in order by the children, working under the guidance of one who knows how to beautify the grounds. The front of a school building is not the place for play, for that makes the grounds bare, and the appearance of the most beautiful building is seriously marred by an ill-kept or bare front yard. In the selection of vines, it is well again to take suggestions from the wild woods. What in the way of vines can be prettier than the deep-eyed woodbine in early fall or the fragrant wild grape in the spring? Among the tame vines there are the morning-glory, hyacinth bean, and a multitude of others.

Of flowers there is no end, but not all are equally useful and appropriate for schoolyard cultivation. Among those best adapted to this purpose should be mentioned the peony which can be used most effectively and which has recently become very popular with landscape gardeners. Tulips, asters, dahlias, chrysanthemums, crocuses, sweet-peas, and nasturtiums can be cultivated on any school ground. Children delight in flowers, and should have plenty of them.

Trees

The grounds must be adorned with trees and shrubbery. If the place is treeless, trees must be provided. Do not set them in mathematical rows, but arrange them naturally, as they grow in their native woods. If shade is needed immediately, the softwood trees will grow more rapidly than others, though in a permanent plan they are not the best. Elms, oaks, lindens, hard maples, and evergreens are much better, not only for beauty but for strength, vigor, and permanency. Evergreens are especially good as bird attracters, and the interest of the birds should always be considered in this connection. For screens around buildings or for windbreaks, nothing can surpass a clump of evergreens.

This subject of beautifying the grounds is so important that in some states arrangements are made through the state Forestry department to supply needed shrubbery, and the services of the State Forester in planning and laying out grounds are available. In virtually all states, advice of experts in the state department of education is freely given. The thing for you to do is to inform yourself on this question of grounds and then work to realize them. It will probably be necessary to educate your patrons to it. You can begin by doing what you can with your present grounds. It is

wonderful how much enthusiasm has been worked up by resourceful teachers in this way.

Playgrounds

In no one respect have modern ideas departed more from the standard of former years, than in our conception of play, as being not only the right of childhood, but as possessing the greatest value in education. Play is nature's way of educating young animals. The kitten that chases the rolling ball is being educated in the serious business of cat life, the chasing of a mouse. Wise old Mother Nature believes in educating the child physically, mentally, and morally, and so she set them to playing to educate the muscles and nascent mental faculties. This is one of the most interesting conclusions of modern science. It is necessary, then, to provide for the free development of the play instinct of children.

So clearly is this seen at the present day that all large towns and cities have spent thousands of dollars to provide playgrounds and play equipment as a part of the school system, and advanced rural schools are finding it necessary to provide for this same instinctive desire of children. Once more we are learning that the very best way to advance is to fall in with nature's ways. So, part of the equipment of the model rural school is playground facilities. Playgrounds are as necessary for country children, as for those in towns. In some respects they are even more necessary. This is another reason why ample playgrounds are required. It is interesting to remark that in some states, the State Board of Education will not sanction plans for new buildings and grounds, unless arrangements are made for adequate play spaces.

"WE MUST PROVIDE APPARATUS WHEREWITH TO PLAY"

Apparatus

Simply providing play spaces is not sufficient according to present advanced ideas. We must assist nature by providing apparatus wherewith to play, and

children need instruction in the use of the same. In general terms, play needs to be supervised by one who is fitted for the work. In larger towns an expert is provided. This is not necessary in rural schools, but some apparatus should be provided. Very frequently this is done without consulting experts, and the best is not always selected, and in some cases, apparatus positively dangerous is installed. The various pieces are frequently set in wrong places, and sometimes they cost several times what they should. All these difficulties can be removed by a little care and study.

The Sand Bin

The simplest, cheapest, and most serviceable piece of equipment for the play of younger children is the sand bin. In fact, the sand bin may be called the forerunner of the whole playground movement, for out of it have grown many other developments of the playground idea. Long before the child is old enough to start to school, he loves to play in the sand, and this interest continues during the years of early childhood. The sand bin takes up little room and may be placed in some corner where the larger children would not find space enough for their games. It should be about eight by twelve feet, and ten inches, high. Around the edge should be placed as a table, a twelve inch board, which may be used either for molding the sand or as a seat for the younger children. The sand bin should be placed in the shade, as otherwise the sand becomes too hot in the summer time, and the children are exposed to the heat when at play.

Swings

Probably the most common piece of apparatus for the play of young children is the swing, and almost every school when it starts the installation of play apparatus begins with swings. However, unless certain cautions are observed, the swing is a dangerous piece. Frequently they are so constructed as to look unsightly, and obstruct the use of the grounds. The most approved type has the frame made of steel gas-pipe, from two and one-half to three inches in diameter. The uprights are well braced in both directions and set in concrete footings some twenty inches square.

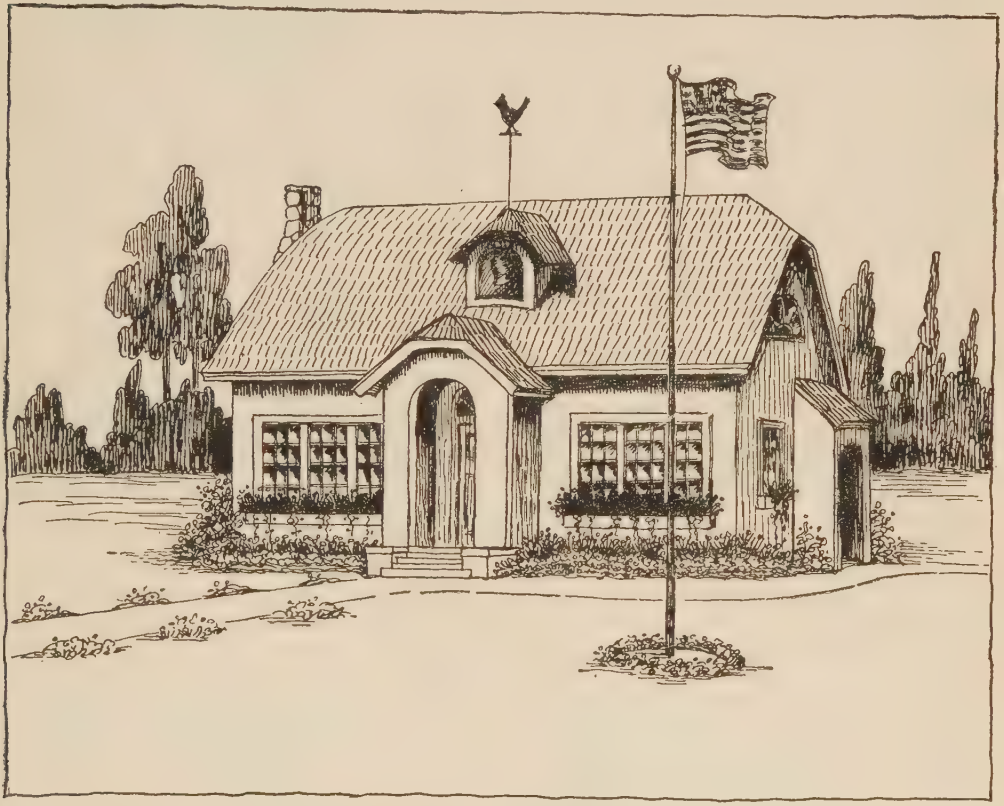
Horizontal Bars

The horizontal bar should be a part of every school playground equipment. Half-grown boys always have acrobatic tendencies, and desire to show their muscular strength and agility in the various performances possible with the horizontal bar. These bars are easily set either in substantial wooden posts or on steel supports similar to the standards for the swings. If the school is a large one, have several bars, one five and a quarter feet, one six feet, and one six and a half feet high. Since it is usually impossible to have mats under the bars the surface earth should be sand, so as to reduce the danger from falling. The bar should be detachable from the posts so that it can be taken in when not in use. Suspended rings can also be easily and cheaply installed. These should be of standard make, and so securely fastened that no accident from breakage is possible. If, in addition, several two-inch climbing ropes are included in the equipment, the playground will be fairly well fitted up.

Its Value in School Work

Play on school grounds is important because of the close relation between playing and regular school branches. Schools all over the country are now making use of the child's instinct for play, by using organized games. Certainly the greatest part of the lives of very young children is spent in playing, either games which they learn from older children or those of their own invention. The latter usually take the form of imitations of the work they see others doing. All little children think of playing house, doctor, or soldier, even if they are not given toys which suggest these games;

indeed, half of the joy of playing comes from finding and making the necessary things. The educational value of this play is obvious. Through their games they learn about the work and play of the grown-up world. Besides noticing the elements which make up this world, they find out a good deal about the actions and processes that are necessary to keep it going.



"THE BUILDING IN EXTERNAL APPEARANCES MUST BE BEAUTIFUL"

The School House

We have thus far been considering the approaches to, and the surroundings of, the rural school house. We have seen that present ideals demand very considerable changes in order to give increased facilities for instruction and play and especially to beautify the grounds. We are now to learn that still more considerable changes are demanded in the modern school building if it is to take its rightful place as the center of community life, where the children are to receive the training that is to fit them for the larger life beckoning to them, where the community can gather to discuss its problems and gain the inspiration of united effort. It might be thought that the real model building of the future is the consolidated school building. But owing to many causes, one-room rural school buildings will doubtless continue to be the rule for years to come. That is the conclusion of experts. Hence we must consider what is necessary in the model, one-room, rural school building of today in order that present ideals may be met and that

the building be such as a progressive community needs for its purposes.

Beauty of the Building

For the same reason that beautiful grounds are now considered essential, the building in external appearances must be beautiful in proportion and outline. Such a building makes for efficiency, it exerts a quiet but persistent educational influence on pupils and patrons alike. Its unconscious reflex influence will enter into the life of the neighborhood and of necessity express itself in many ways. The patrons who see a beautiful and appropriate school building are inclined to be more loyal to the cause it represents. The children who attend in such a building are subject to an unseen influence that makes for interest. The district school house is the only building in the community that belongs to all, and, in a way, it reflects the civic standards of all. It is, therefore, important to express through it the highest attainable ideals of beauty and fitness, so that it may serve all acceptably. If a beautiful rural school house could be constructed in every neighborhood, it would not be long before the people would see and feel its power.

The Influence of Beauty

Does any one think we are urging too much the necessity of beauty in grounds and surroundings? Do you think this has nothing to do with school methods? We can only reply that beauty exerts an educative influence, and methods in teaching have to do with whatever assists the teacher to enrich and make more effective the lives of his pupils. Says the chairman of the Committee of Twelve on Rural Schools:

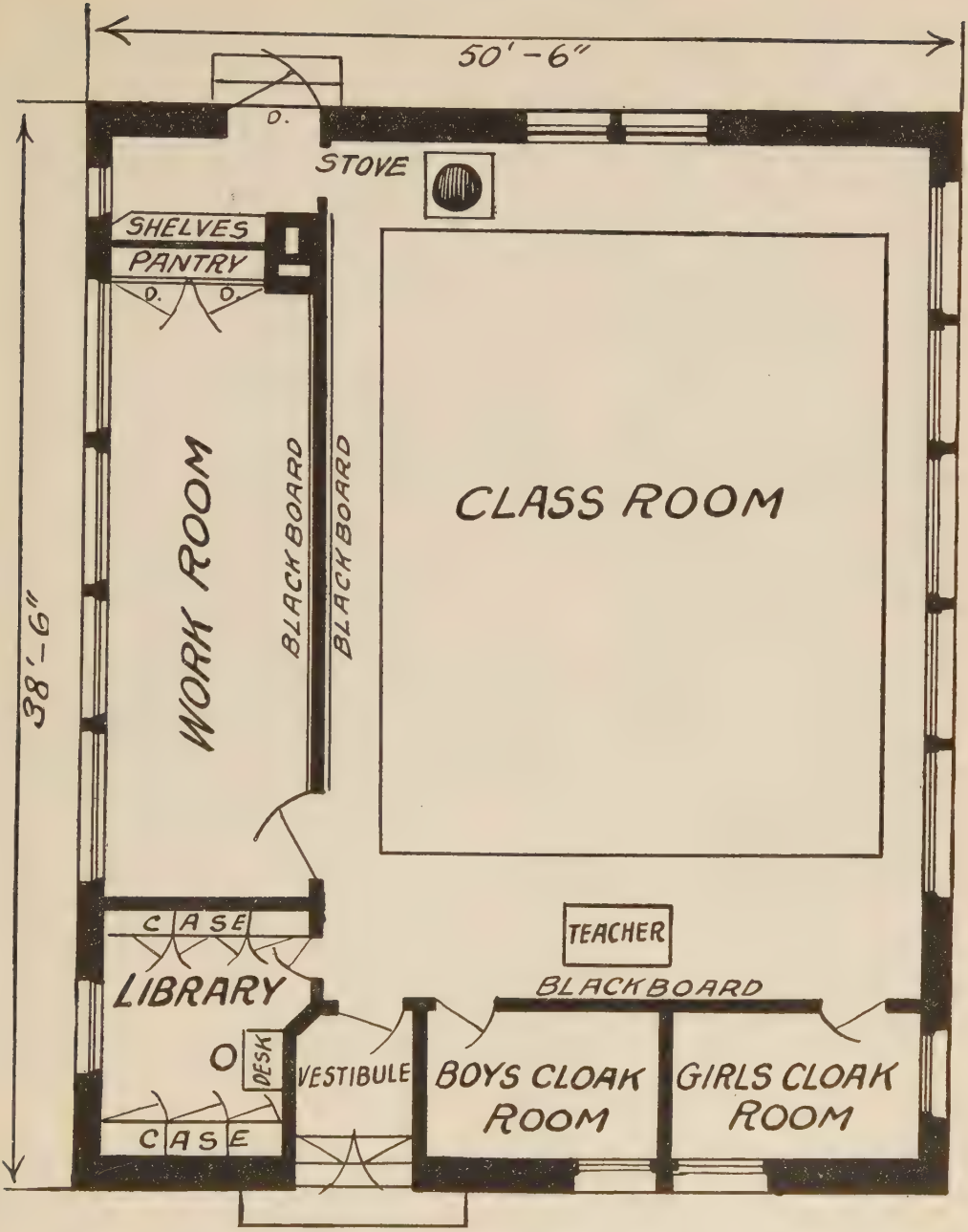
"If children are daily surrounded by those influences that elevate them, that make them clean and well ordered, that make them love flowers, and pictures, and proper decorations, they at last reach that degree of culture where nothing else will please them. When they grow and have homes of their own, they must have them clean, neat, bright with pictures, and fringed with shade trees and flowers; for they have been brought up to be happy in no other environment. The true test of our civilization and culture is the kind of home we are content to live in; and the influences of our schools should help to form a disposition for those things that make home life happy and healthy. If the farmer's boy can be taught to love books when he is at school, he will have a library in his home when he becomes a man; if the farmer's girl can be taught decoration at school, she will want pictures and flowers and embroidery when she becomes a woman."

How Obtained

The beautiful house need not be expensive, towers and turrets are not required. In nearly all states, model school buildings have been erected by Normal School authorities. Plans of these can be obtained for the asking. In the past practically all school houses were copied after those in adjoining neighborhoods, and it has not been thought necessary to strive for beautiful effects. What adornments have been attempted have frequently accentuated the lack of unity and harmony. Hundreds of rural school buildings show that if the roof and the sides, the height and the width, had been better proportioned much money would have been saved, and more beautiful buildings obtained.

New Rooms Needed

The building required to successfully demonstrate the new education, must be planned to meet many requirements not demanded of the old style buildings. Manual training, domestic science, and related subjects must be provided for. All district school houses, even those of the one-teacher type, should be provided with at least one work room; two would be better. In considering the question of expense, remember that a modern self-binder costs more than a scythe, but it is worth the increased price, and no



PLAN FOR A ONE-ROOM RURAL SCHOOL

farmer would think of economizing by refusing to buy the binder. Such a work room is almost a necessity to meet the demands of modern rural schools, though many teachers accomplish wonder with only one room.

In a district where the number of school children does not exceed thirty, one good sized, well lighted school work room can be made to accommodate both boys and girls, by alternating their work. Here the boys can be taught to make useful articles of furniture for their homes, or for the school, and to apply their arithmetic and drawing to real problems. Such work can not be done in the regular classroom. It can also be used as an agricultural laboratory. The preparation of boxes for testing the germinating power of seeds, the study of soils and fertilizers, experiments on the growth of plants, and a large number of similar experiments call for a special room. It can be used to teach domestic science; sewing can be taught. Fitted up with a stove, some practical instructions can be given in cooking; and the school lunch, now deemed so important, can be prepared.

Cloak Rooms

It should not be necessary to remark that every school building should be provided with a special room or rooms where the children can hang up their wraps and place their lunch baskets in safety and out of the dust and bad atmosphere of the school. Nearly all schools have made provisions for this purpose, and yet an official survey, in a rich and prosperous state, disclosed the fact that in one-third of the schools visited there were no such rooms; but the wraps were hung upon the walls of the rooms, or piled on unused desks. No teacher can make the school room neat and attractive under such conditions. This question has been carefully considered by the new education; two rooms are now deemed necessary. They should be well ventilated, lighted, and heated, and arranged to open into the classroom, thus giving the teacher a better command of them. Such an arrangement, however, may interfere with needed blackboard space, for which modern buildings make liberal provision. On the plan given the location of these rooms will be noted.

Library and Teacher's Room

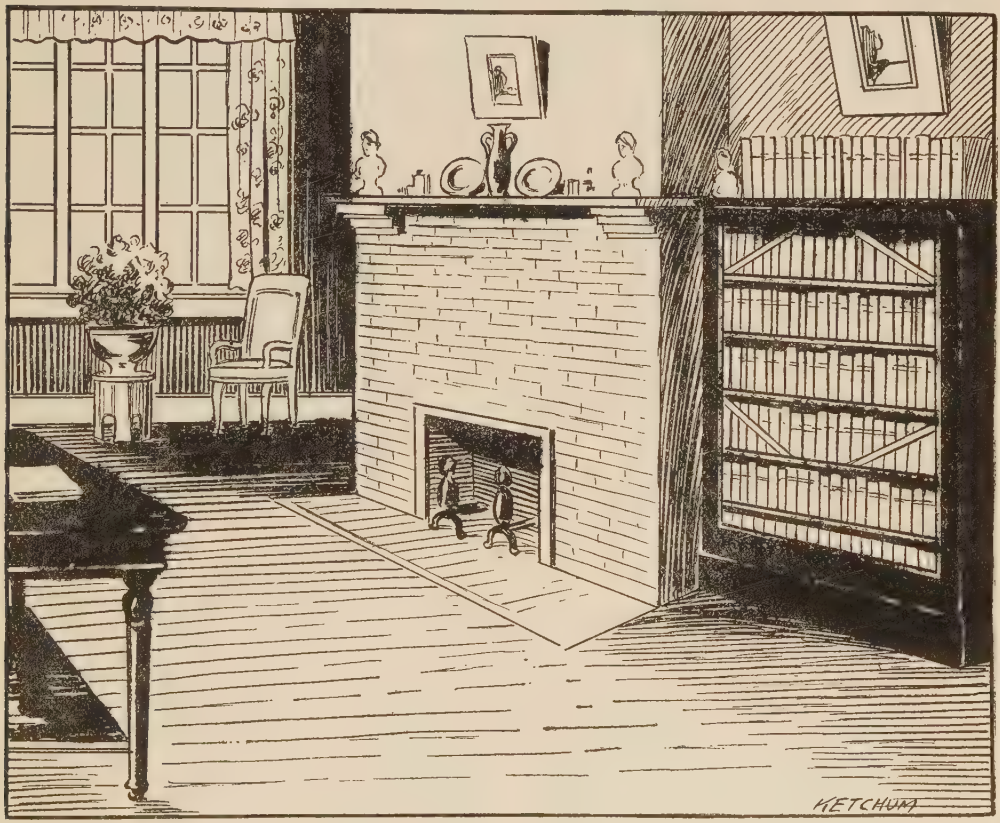
Another most important room in the school house for which you are to work is a room for the library to be used also for the teacher's room. Such a room is worth many times its cost in its reflex influence. We must remember that the school building belongs to the whole community, and not simply to the children who are attending school and the teacher who is employed. It is generally the only community property within the district, and, hence, everybody has a right to use it, under proper restrictions, and to make it the general civic center of the community. Practically, all district schools throughout the country have some general reference books; and a convenient place is needed where they can be consulted readily, easily, and without disturbance. It is not necessary to have a large room, but it should be made the most beautiful and interesting room in the building.

Little touches of decoration and comfort may appear. An atmosphere of quiet study will be suggested. It can be kept neat and tidy, and thus exert a tranquilizing effect on the children when they use it. Simply being in a room devoted to books and reading will create a sentiment for books and develop love and respect for them. Such a room as this is sure to appear in all plans for model rural school buildings, even those of the one-teacher type. It is one of the features that makes for efficiency in rural school work. It will have the same influence in the school and community that a neat, attractive library has in a home. It gives it a finished effect that appeals to all who enter the building.

Increased Expense

It is apparent when we consider the grounds and the building that our present ideals demand, if we are to advance the rural school to the standard of the town and city schools, more money must be expended than is at present devoted to these purposes. But so much more is

expected of the schools than formerly that the increased expense is only reasonable, just as needed machinery for the farm costs more than the simple implements of a few decades ago. But the benefits expected are not capable of being computed in money. It is the welfare of the community, of the boys and girls who are soon to be leaders in rural life. How petty seem all questions of mere expense weighed in the balance against such interests! Surely here is a platform on which homes and schools can most effectually co-operate.



THE LIBRARY SHOULD BE MADE THE MOST BEAUTIFUL ROOM IN THE BUILDING

Other Details

Every detail of school construction has been made the subject of scientific analysis to best serve the purposes of the new education. Lighting, heating, and ventilating have been studied and the result is new methods in every instance, all of which must be made use of if we are to secure efficient results. In modern school houses, the light is not admitted from both sides of the room, as in the older buildings, but comes mostly from one side. If there could be no break in the surface admitting the light, it would be better. Some sunshine should enter the room, but the north light is the best for general purposes, and should come from the left side. Science says that to secure the most satisfactory diffusion of light the windows should be placed within six inches of the ceiling. The upper

fourth of the window furnishes one-third of the light, and when the ceiling is too far from the upper sash the light is absorbed instead of being given back into the room.

For similar reasons, the color of the walls should be selected with reference to a maximum diffusion of light and a minimum tax on the eyes. Yellows and buffs absorb little light, but they produce visual fatigue. Probably the best color for the wall is a light green-gray. White is best for the ceilings. Some of the most attractive schoolrooms are made so by a simple frieze, in soft-colored chalks along the upper edge of the blackboard. A picture molding running around the entire room is indispensable, but pictures hung there are likely to do more harm than good when they are covered with glass. It will be noticed that our aim is to beautify the schoolroom. Nothing will so certainly awaken the generous impulses, enthusiasm, and sweetness innate in children as an air of coziness. It is really strange, when we stop to think about it, how many little things that appeal to the better side of children we have neglected in the past. At last their value is being recognized.

Ventilation

The new education recognizes that in order to do effective work in the schoolroom, the children must be supplied with the greatest tonic in the world—fresh air. Education can not be weighed in the balance against health, and so the edict is clear and forcible that all school buildings where the new education is to be exemplified, whatever other features they may possess, must be fitted with the most approved system of ventilation. The teachers must be insistent on this point. In this as in other respects the school is to lead the community.

Why dilate on the importance of fresh air if conditions in the schoolroom are not in keeping with your teaching? Every breath of air coming from the body contains water and organic matter in the form of vapor. It contains too much carbonic acid gas and may contain disease germs. If this air is breathed again, there is not enough oxygen in it to vitalize the blood. When the air has been breathed a second time, it becomes dangerous to health. Thirty children in an ordinary schoolroom breathe all the air in a half hour. In an hour and a half the same air has passed through the lungs of the children three times. It is not necessary to point out the injurious results which are apt to be serious. Colds, catarrh, headaches, nervousness, languor, listlessness, aversion to activity, and poor physical condition often result from bad ventilation. Children in this condition of body and mind can not make the progress they should.

What the Teacher Should Do With Present Equipment

You should instill in your pupils' minds the necessity for fresh air. They will talk this over at home. Make practical application of what you teach. Always at intermission the windows should be opened and the air flushed out. Five minutes is sufficient for this. Various forms of window ventilators, such as inclined boards and window frames, are at your command. If you have proper heating facilities in your room, such as jacketed stoves, you can easily secure good results. But in the efficient school building of the near future some system will be installed which will force fresh air in, and foul air out, at the rate of about thirty cubic feet of air each minute, for each child. More and more, small towns, villages, and even country districts are installing such systems. A convenient one consists of a dynamo or a gasoline engine, a fan or fans, and a proper system of flues. Its cost is not prohibitive, but here again, how shall we weigh cost against health?

Heating

The heating of the schoolroom is another problem. The unjacketed stove, still unfortunately common, is an anachronism. Jacketed stoves properly in-

stalled are much better. But modern requirement calls for a basement furnace; but it must be a real basement, not simply a hole in the ground. It should be an excavation as large as the space enclosed by the walls and have a concrete floor. The coal-room should be tightly boarded with a close fitting door, so that dust will not escape. There should be a large fire-proof ash bin. With such an equipment the problem of ventilation can be satisfactorily solved.

Most schoolrooms are overheated, yet even when the thermometer registers high the room often feels cold. This is because the room lacks fresh air. We fail to realize that it is much easier to heat pure, fresh air than air that is stale and foul. Fresh air is elastic and a good conductor; foul air is full of carbonic acid gas, not a good conductor of heat. The heat diffuses itself readily through the one but with great difficulty through the other. Children invariably make better progress in a moderately heated room than in one overheated; they are less liable to colds and kindred ailments, freer from irritation, restlessness, and a spirit of mischievous discontent.

The Seating Problem

The question of proper seating facilities is one of great importance in the model building. Careful investigations have shown that seats not adapted to the sizes of the individual children cause physical injuries and diseases that sometimes result in serious physical handicaps, sometimes in death, and of course the new education can not be indifferent in such a matter. The old-fashioned home-made benches were unspeakably bad, but they have by no means gone out of use. The patent desk and individual seat are an improvement, because they are designed to fit the individual shapes and sizes of the children.

Better even than these, particularly for the primary grades, are the simple unattached chairs and tables which are as old as the nursery. Such a seating arrangement is not an untried experiment, and where it has been tried, the results have fully justified the hopes of those that made the change. Seats of this kind have, within the last year, been very extensively adopted in some cities. It is said that there is no more beautiful, interesting, or inspiring sight than a schoolroom of children seated in chairs that comfortably fit each child, at tables of just the right height, happy in an air of busy order that is the only good order —an atmosphere of work whose sunlight dispels the sense of gloom too often present in schoolrooms.

In Conclusion

All the suggestions made in this section as to grounds, buildings, and equipment are considered only reasonable by the new education. According to the requirement of the Illinois Department of Public Instruction, no rural school will be given the standing of a superior or a standard school unless it possess substantially all of the features here enumerated, pertaining to buildings and grounds, in addition to other requirements as to qualifications of the teacher. The general purpose running through them all is to dignify education in the minds of children and to make an appeal to the higher things of life. Many factors in education overlooked by the older education are eagerly utilized in modern methods.

A Word to School Patrons

Those who have not devoted thoughts to the subject do not realize how far behind progressive town schools is the average rural school. The highest authority in school matters in the United States, the Commissioner of Education, says the city boy and girl have privileges far superior to those of the farm boy and farm girl, and it is asserted that this superiority is so marked and so far above the average rural school as to make the situation in many sections of the country deplorable. It is useless to talk about the charm of country life, the independence and dignity of producing

from the soil, if the school is left as out-of-date as is the wooden plow. It is your duty to insist on the best. We have not suggested a detail in grounds or equipment that is not a necessity if you would have the school your children attend measure up in efficiency with the ones their cousins attend in town. It is your plain duty to yourself, to your children, and the community of which you are a member, to labor for such facilities as an enlightened teacher is urging.

Questions for Consideration

1. What is the area of the school house grounds in your district? Has any effort been made to make the surroundings attractive?

2. Do you think that the surroundings of the school house exert an influence on the pupils attending it? If such be the case, why not beautify school grounds with trees, shrubbery and flowers?

3. Have you any apparatus for the playground?

4. What do you think about having a work room in your school? Can you afford to be without such a room if it will be of help in teaching the modern branches?

5. What do you think of the advisability of having a library room? Do you think if such a room is made cozy and homelike it would exert a good influence?

6. Have you considered the problems of lighting, heating and ventilating the school?

7. Why should light come from only one direction? Why over the left shoulder?

8. What means do you have of ventilating the school room? What is the use of trying to teach physiology and hygiene in a room that can not be ventilated?

9. Do you believe your district can not afford these modern facilities? The town provides them for town children, why not you provide them for your children?

10. Admitting these modern improvements will cost the district some money. What would be the increased tax rate in your district? Is not the real question "Can you do without them?"

"Life is undervalued by the majority of mankind. Where is the man or woman who accomplishes one tithe of what they might? Who can not look back upon opportunities lost, plans half finished or altogether abandoned, thoughts crushed, and aspirations unfulfilled—all caused by lack of necessary and possible effort? Now and then a man stands aside from the crowd, labors earnestly, steadfastly, and confidently, and straightway becomes famous for wisdom, intellect, or greatness of some sort—that illustrates what each man may do who takes hold of life with a purpose."

THE NEW VIEWPOINT

We have not mentioned the most important requirement of the new education as far as it is concerned with rural schools. Improved grounds, buildings, and equipment, are only the material requirements. There is a psychic qualification as well. We refer to the new viewpoint, in accordance with which the energies of the school are to be re-directed. The same meaning is expressed in the saying that country schools must be taught in terms of country life.

The unthinking teacher lightly passes this requirement by, thinking, perhaps, he is dealing with words of vague meaning. But they go to the very heart of the new education movement. We are learning that ideals held in mind color our thoughts, our words, and our actions. In view of this, the new education insists that its exponents form their ideals of the purpose of education in general and how best to attain the same. If we are to appeal to the minds of children, the effective way to reach them is through the familiar fields of life as they know it. The majority of children attending rural schools are familiar with farm life, the scenes, incidents, and general atmosphere of country homes. Therefore that should form the background against which the instructions given are, as it were, projected.

And yet again, since the new education is intended to increase efficiency, it must be in accordance with the needs of the life of the community, and the great need of rural communities is to enrich rural life. It is this ideal that the new education insists must re-shape the energies of the rural school, and give new inspiration to the rural teacher. The emphasis must be shifted from traditional ways, to farm and home subjects taught in terms of country life. This does not mean to relegate the three "Rs" to a secondary place, for they were never more important than at present, but they must be so socialized and so vitalized that they will contribute more concretely than in the past to modern aims.

The New Directions

The re-directed energies of the school develop along two lines—agriculture and home making—to accomplish one result —to train country children to realize the possibilities of rural life and to make their surroundings more attractive, agriculture and home life form the background of the rural child's world, and indicate the method of approach. Rural education must continue to supply the broad, general foundation of knowledge all must have. This in accordance with old ideas, but the new education wants the general training to be so directed that it will help the boy in the problems of agriculture, stock raising, and the machanical work of the farm; and train the girl to understand and care for the farm home, making it comfortable, hygienic and artistic. In short, its energies must be directed towards making rural life more satisfactory.

Agriculture

Agriculture is the dominant interest in rural communities. How shall the activities of the school be so directed that it will emphasize this feature of rural life? It will fail to do this if agriculture be taught in a formal, bookish way. A better method is at hand. We have been blind to a great amount of material lying right at hand, which serves to illustrate what is meant by correlating the activities of the school to its surroundings. We are just beginning to discover that it is the rural home, together with the environments of the school, that form the real laboratory of the rural school, from which we can draw material for study that appeals to the every-day life of rural children. The pupils can be made familiar with the best modes of planting and cultivating

the various crops that are growing around them, and with the diseases and insect enemies that threaten them; the selection of seed; the rotation of crops; and many other practical things that apply directly to their home life.

Where There Is a Will There Is a Way

The new education insists that where there is a will there is a way; and so will not accept the excuse so often proffered that building, equipment, and sentiment in the community are such that no departure from accustomed methods such as are now asked can be made a success. It points to the triumphs of teachers who have made a success under similar handicaps. Its message to all rural teachers is to begin, do what you can. What others can do you can do. Show yourself a modern teacher. A great deal can be done in the one-room district school with its meager equipment. The selection and care of seed-corn, and the methods of testing it require very little apparatus, almost no expense, and practically no additional room.

Similarly the testing of clover and timothy seed for freedom from noxious weeds, the method of treating seed oats to prevent rust, etc., can easily be accomplished. Soils can be examined, compared and tested, and their suitability for different crops determined. With the co-operation of the farmers of the community and experts from the agricultural schools, special stock and grain judging contests can be held. All these things, and many others that lie at the very foundation of successful farming, require, not special laboratories and equipment, but only knowledge, determination and willingness to work on the part of the teacher. They are within the reach of the humblest district school, and need be hardly less effective and thorough than in the larger school.

Look Around You

The teacher who has caught the inspiration of new methods is not overlooking opportunities that are to be found in all sides to advance his work. Re-directing the energies of your school and teaching in terms of country life mean you are prompt to make use of all agricultural incidents in your community that will make an appeal to the interests of the pupils. The seed-corn being planted on neighboring fields, the stand of corn on the farms along the road, the history of the rotation of crops in the neighborhood, the rust on Farmer Smith's oats and the smut on Farmer Brown's corn, the farm animals in adjacent pastures or barn-yards—these are all as easily available for study as if they were a part of the equipment of the school and have the advantage of being real and concrete problems.

You may be certain Farmer Smith or Jones, or Brown will be glad to talk this over with your pupils. Once the neighborhood becomes interested in the school's work in agriculture, there is no end to the assistance that will be willingly and gladly rendered by the patrons. We can readily understand why this new idea is so essential to the new education.

Correlating the Common Branches with Agriculture

It must not be inferred that the new education would enlist all the energies of the rural school in teaching agriculture and home life. That is not meant. It is still the purpose to give pupils the benefit of the necessary knowledge of the same three R's, but to impart them through the medium of the scenes and incidents of rural life. This course is adopted for two reasons. It is the most effective way of instructing the pupils, but, what is of more importance, we want rural life to furnish the backgrounds of the ideals, aspirations, and plans of the pupils. Experience has shown that such a course enlists the interests of the home; this makes for efficiency in the school. This point being so important, a concrete illustration will be given. Constantly remember that the

distinctive problem of the rural school is up-building rural life.

Arithmetic in Terms of Farm Life

It may strike those who teach arithmetic in terms suited to mercantile transaction, the needs of bankers and brokers, as a failure to grasp the essentials of arithmetic training to put children to computing potato yields, the contents of graineries and silos, the price of bags and the cost of barns and poultry houses; yet what more natural than that the rural child should figure out his arithmetic problems in terms that he understands? It may be a dreary task for him to figure out the commissions Broker Smith earns by investing a given amount of money in stock at a certain per cent below par, but give him some problem in connection with his poultry or rabbits which may concern his own pocket, and it has meaning, and consequently interest for him, and he readily grasps the principles involved. It makes a great difference in the interest of the boy whether he is estimating his profits or the profits of Broker Smith.

Some Problems

The following are some problems suggested by the Department of Agriculture, taken from their bulletin, illustrating what is meant by correlating arithmetic to agriculture.

1. On a plat of tomatoes (one-tenth of an acre) the rental was $2, labor $4.50, staking and pruning $2, fertilizer $2.50, harvesting $2. One hundred dozen cans at 36 cents a dozen were used. The canner cost $5, and the cost of labor for canning was $10. The out put of 1,200 cans sold at 8 cents a can. Find cost of production, total cost in cans, profit, percentage of profit based on investment, and profit per can.

2. A quail in December was known to consume for one day over 2,000 May weed seeds. Estimate that each 10 weed seeds might have cost one ear of corn the next year and that 85 ears make a bushel. Compute the loss prevented by 10 quails at this rate during the entire month of December.

3. A girl is to raise one-eighth of an acre of tomatoes and will use a part of a field which is 15 feet wide. How long a strip will she use? How many plants can she set 3 feet apart each way?

Many similar problems are given and many more occur to all rural teachers. Is there any doubt that such problems would be far more interesting to the average boy or girl in the country, that they would have for him a meaning and grip his attention, appeal to him in a way that a percentage problem in stocks and bonds would utterly fail of doing? This method of procedure need not be carried to an extreme, but local problems constantly present themselves that can be used to illustrate principles in arithmetic. For instance, if board measure is being taught, use the problems of the farm to round out the work—laying a floor for a neighboring house, foundation for a barn that is being erected in the district, figure out the cost of a poultry house one of the boys wants to build for his poultry, etc.

Other Branches

In a similar way other branches are to be taught. In geography, the district map, made in accordance with data gathered in your survey showing the location of the farms and houses, the school building, expanding into the county map and then the state, with attention paid to the products. We have prepared for the use of teachers, graphics of the various states. The resourceful teacher can enlarge upon them. Imports, exports, the products of foreign countries, may not interest them; but if such topics are some way connected with the corn, wheat, hay, and live stock products of their district, county and state, how these products reach the markets of the world, you give them an interest utterly lacking in the traditional methods. You have re-directed the energies of your school.

All geographical, historical and other culture facts that you are anxious to impress on the minds of your pupils are projected against the background of the life they are living. This subject is deemed of such great importance that the Department of Agriculture has issued a special bulletin containing suggestions for thus correlating the common branches with agriculture.

New Use of Old Material

Nothing better illustrates the resourceful nature of the new education than the use it makes of old material in education. Ever since the district school system was established, children have been bringing lunches to be eaten at the noon hour. Having served preceding generations well, no one thought the method could be improved. The new education has discovered that the cold lunch, eaten amid unsanitary surroundings, in unsanitary haste, can be exchanged for the warm lunch with hygienic surroundings, and be made the means of imparting educational features of great value.

All educators of note and wide awake teachers at once recognized the possibilities of this new educational adjunct, and now there is probably not a state in the Union in which some rural schools are not making use of it. Many state normal schools have issued bulletins on this subject for the use of their teachers. Some have prepared suitable outfits for schools, and virtually all recommend its adoption. The United States Bureau of Education warmly approves of it, and has made it the subject of a bulletin. So, here is another feature that rural teachers, desirous of forging to the front in their profession, must consider. They certainly can not afford to remain ignorant of its possibilities.

The Advantage

The advantages are very evident. The sanitary features are prominent and its educational features most important. The lunches may be eaten at a table prepared for that purpose, or paper napkins may be spread on the individual desks and the lunch eaten in an orderly manner. Conversation can be encouraged, current events and interesting topics of the day talked over. The subject matter of this conversation can be agreed upon the day before, and subjects can be looked up in reference works.

Hygienic learning can be impressed on the children, such as eating slowly. Table manners inculcated, habits of cleanliness insisted on. Hot water should be kept on the heating stove, soap, and paper towels can be provided, and the children instructed to make use of them before eating. Does any one doubt this course makes for efficiency in life? Is not this the aim of education? As we shall see later, the hot lunch is an excellent means of introducing the subject of cooking in the rural school. We read in an official communication that country schools in Washington state are specializing in warm lunches which are used not only to better the physical condition of the pupils but to teach domestic science.

What the Teacher Can Do

This is a feature that can not be easily handled in a building not provided with a work-room, which, however, all progressive communities will soon have. If you have the benefit of such a work-room your task is easy. In one end of the room, the lunch outfit is installed. Two girls are appointed to prepare the lunch, others serve, still others clean up the dishes; you will find that the pupils take the greatest interest in this work, in fact the whole district is interested.

It is harder, of course, if you do not have such a work-room, but the new education expects its teachers to overcome such handicaps. Instances are on record where the outfit was set up in one corner of the schoolroom, or at one end of the entry to the school, and in one case even a part of the front porch was enclosed to serve as sort of a school kitchenette. The teacher who wants to do something worth while, who is determined his pupils shall be assisted to higher planes of development, will find a way to introduce this and other advanced methods into his school. Adopt this as your motto, "If others can do it, I can."

Manual Training

Not only does the new education adopt new methods, but it is determined to secure for use in rural schools advanced methods adopted in town schools, pro-

vided they are of such a nature as to further the true aims of rural education, which is to render boys and girls more efficient in the activities of rural life. Manual training has long been recognized as a department of great value in the curriculum of town schools. It exerts a broadening influence upon culture in general. In extending to rural schools the benefit of manual training is displayed the activity of the new education.

It is well understood that rural schools in general are very poorly prepared to introduce manual training. In improved buildings, even of the one-teacher type, if a work-room is provided, a beginning can be made. It has also been supposed that however useful manual training was in town schools, it was not needed in rural schools. It, however, stimulates the constructive faculty and cultivates an appreciation of the beautiful in design. These are faculties that the new education desires to strengthen in town and country alike, and so it expects teachers to do what they can.

Drawing Home and School Together

There are many practical home and farm conveniences no one of which is of great importance, yet taken together they lighten work, make home more attractive, and save many steps for those who have charge of the home. It will not require any great amount of skill for the boy who has even a slight knowledge of the use of tools to make such articles. In general, the boys are delighted to do this work and are receiving practical education at the same time. He is learning about the care and use of tools, the nature of the different woods, their availability for various uses, their finish and protection, and many other useful lines of information which can be made of practical application in the home. It is work of this kind that draws the home and school together. It is something worth while. Rural teachers can not afford to neglect the method of manual training. Do not make the mistake of supposing manual training is designed to make practical wood workers. Whatever results in that direction is accessory, as it were.

What Can Be Done

In spite of meager equipment, or even none at all, a good many teachers are having some form of wood work with the few tools that can be brought from home. The problems of repairing around many school houses furnish plenty of projects which are an entering wedge in teaching wood work. Some teachers induce the boys to repair broken fences, worn-out walks, leaking out-buildings, hang gates, lay new floor to the school house, make new porches, wood boxes, and bookcases, all of which have been neglected by indifferent school authorities.

Questions for Consideration

1. Have you caught the underlying thought of this section, and does it appeal to you as a teacher?

2. Presuming that you are teaching in a one-room building, have you ever thought about the warm lunch? Make a study of this matter. Talk it over with some of your patrons.

3. In regard to manual training, has anything ever been done in your school?

4. Take one study at a time and plan out for more active correlation with agriculture. If you are doing anything in manual training see in what respects you can utilize that also.

5. If any of your patrons are about to erect additional form buildings, such as corncribs, or put up fencing, why not have your boys make a study of the same, and estimate lumber, etc., required? Have your pupils bring as many home problems as they can to the school.

THE NEW EDUCATION AND THE HOME

The new education most heartily believes that the education of children is the concern of home and school alike. It holds that one of the faults of the older system was the lack of sympathetic co-operation between these two educational fields, which thus lost touch with each other and the school failed to satisfy the advancing needs of the home. To remedy this, the new education is quick to put in use every practical means to enlist the interest of the home in the school. This does not mean formal interest shown by parents in occasional visits to the school, but interest that goes right to the heart of school work. It is not traditional book instruction, but it is education that makes for efficiency in life. It is bringing the home and school into contact, with the home taking a part in school work, which, while indirect, is none the less real.

Home Projects

This evolution in school methods passes under the general name of Home Projects. It is a very recent departure from old school methods, so recent that it has not been reduced to a complete system; and it has branched out in many different directions, some of which it is hard to group under one general head. The more simple forms can be introduced into any school, in any section, and the teacher who does not employ some one of the various projects is letting pass a splendid opportunity to interest the home, advance interest in his school, and make his work a success. Not content with originating projects, the new education adopts as its own, ambitious forms of club organization and other movements not originally introduced to assist the school. But all having this in common, they interest the home in the school and possess feature making for practical education.

Helping at Home

The simplest form of home projects may be described as helping at home. In general boys and girls in rural schools do help at home, but when such a help becomes a home project the work to be done is assigned to the pupils by the parents after consultation, and record is kept in the school of the manner and faithfulness with which that work is done, which records are made by the parents, on blanks furnished by the school. The work undertaken need not be educative, nor in any way correlated with school work, and the parents are to judge the quantity and quality of the work performed. It is evident that in such projects home and school are co-operating in practical education of the children. They are training children in efficient, practical, important duties. The result is increased interest all around.

The daily tasks to be done, a record of which is to be kept by the school, are simple every day duties. For the boys they include such tasks as building the morning fires, feeding stock, caring for poultry, providing fuel. Credit work for girls includes any of the ordinary home duties, such as caring for a room, or setting the table, something specifically theirs to plan and do. Other subjects may be added by the parents if the work is regularly done by the pupil. In rating the pupil for the term or year, the industrial work carried on in the home is usually counted the equivalent of one subject pursued by the pupil in school, and credit is given on this basis. Home projects of this nature were first introduced in Massachusetts schools, and have been widely adopted by individual schools throughout the country. Prominent educators point out that it is not expensive and can be put into practice anywhere, with the result that parents are assisting teachers to form the habits and tastes of the child.

Projects Intended to Assist the School

Almost at once it was seen that home projects could be made the means of assisting the schools, and especially rural schools, in teaching branches for which

the school itself is but poorly equipped. With this advance home projects become of great importance. They answer to the great demand of the day for a change that will connect the home training more closely with the life and work of the people; a change that will bring the school to the home and tie together the book learning of the one and the doing of useful things of the other. The home is the center of our civilization. Therefore, school-home projects should be the best way to make home subjects the center of school work. No other school activity opens so wide a field for the profitable and agreeable combination of study with doing. Such projects vitalize book education by putting into practical application the principle—"study what you have need of, or soon will need, and learn by doing." Prof. E. J. Tobin, County Superintendent of Cook County, Illinois, says, "The introduction of this system will put real education within the reach of every boy and girl, whether rich or poor, in the schools nearest at hand."

Agriculture and Home Projects

We have pointed out that agriculture forms the background, so to speak, of the new rural education, but to make this part of its curriculum, successful, agricultural home projects are of the greatest value. They put the crown of success on such teaching in the rural schools. The plan adopted is simple and effective. Each pupil, with the advice of his teacher, selects some definite piece of work, agricultural in character, to be done at home, in part under the direction and supervision of the school. The work selected must be of such a character that it can be carried through from beginning to completion by the pupil, who is required to pursue supplementary reading and study on his home project as a part of the school work. The teacher, or a special supervisor, occasionally visits the home, inspects the pupil's work, and gives necessary suggestions or directions. The consent of the parents for the pupil to take up the project must be obtained, and their hearty co-operation assured.

Poultry School-Home Projects

To illustrate the practical nature of agricultural projects, and as an indication of the wide range of school branches taught, we will refer to one of the projects instituted by Prof. Tobin. In Poultry School-Home Projects, the pupil must assume the care of at least six fowls, but he may take more if he wishes. These fowls must be kept in a separate inclosure. The pen must have a standard sign board informing the public that the fowls are under the care of a member of the Poultry Project. The member must keep the following records:

(a) Daily egg yield for month;
(b) Total egg production for month;
(c) Sale of eggs for month;
(d) Sale of poultry for month;
(e) Cost of feed for month;
(f) Profit or loss for month;
(g) Number of fowls owned at close of month;
(h) Value of poultry owned at close of month.

In order to get school credit for this work, the pupil must show that he has attended to it for nine months and has made a net profit of at least $10.00.

This project has proved a great success, and the total amount of profits earned has been very considerable. Any one can see many excellent features connected with it. This is surely school work projected into the home. The home is co-operating with the school, and the interests of both are increased. The records that are required are a splendid preparation for successful work in life.

Practical Value of Such Projects

The more one reflects on such projects, the more possibilities appear. Nothing needs dignifying more than does the scientific tilling of the soil and the doing of ordinary tasks. Nothing dignifies a subject like giving it a place in the school course. Other subjects and occupations have been dignified in that way. Pupils

should be taught to do things as well as to study things. Not every section can be as fully organized for work as in Cook County, Illinois. Every pupil over ten years of age is required to take a course in school-home projects as a part of his regular school course. In order properly to carry out this plan, an adequate number of traveling directors are employed during the summer vacation

tures of ordinary branches. Take Arithmetic. Pupils are required to stake off, measure and draw diagrams of their plots of ground. They understand very well that the standard plot is one-tenth of an acre. They are also required to keep an itemized account of all receipts and expenditures. What more practical way of teaching the essentials of arithmetic? Even the more advanced opera-

"BOYS DO NOT FORGET THE RELATION OF THE SIDES OF A RIGHT ANGLE TRIANGLE"

period, so that the home project work will be as well directed as the more academic work of the school.

This work is made a branch of their school work and practical efficiency must be displayed in it, or they will not be advanced in their grades. It is evident the time is rapidly approaching when rural teachers generally must make a study of this method even as they do of the older branches and methods.

Practical Arithmetic

Lest you imagine that other branches will be neglected, consider how these projects will emphasize the practical features of ordinary branches. Take Arithmetic. Pupils are required to stake off, measure and draw diagrams of their plots of ground. They understand very well that the standard plot is one-tenth of an acre. They are also required to keep an itemized account of all receipts and expenditures. What more practical way of teaching the essentials of arithmetic? Even the more advanced operations are invested with a new meaning. The pupil understands and will never forget how in a plot of given length, he can find the width required to contain one-tenth of an acre. Boys do not forget the relations of the sides, of a right angle triangle to the hypotenuse, when once they have figured on the width of a poultry house with rafters of a given length, with roof of a given pitch.

Nature Study

Ordinary nature study is apt to become a monotonous course in school. But pupils who keep observation records of such events as dates of planting, trans-

planting, blossoming, ripening, etc., will learn of nature's way through their own interest in the work. They soon learn the relation between the butterflies fluttering over their cabbage patch and the worms they have to contend with later on. The boy quickly acquires a fund of information about insect life, plant enemies, the value of birds as the farmer's friend, and even the toad that makes himself at home in his plot becomes of interest to him. Does any one doubt the value of this practical course in nature's study?

What the Teacher Can Do

Before passing on to consider even more wonderful development of Home Projects, embracing in their sweep still more comprehensive educational features, demonstrating still more clearly the immense value of new methods, let the teacher pause to reflect on what has now been given. Have we not already justified our use of the term, New Education? Is it not apparent that the teacher's work is placed on a greatly higher plain than under old concepts?

But we have yet greater disclosures to make, all of which ought to be a stimulus to work. What are you doing to demonstrate that you also are wide awake, and propose to utilize the most advanced methods in education? You may be in a section where nothing of this kind has been employed. Human nature is the same everywhere and you can begin by introducing some simple form of helping-at-home projects, afterwards extending to agricultural projects. Study over your local problems. Later, you will be ready for the still grander development of the New Education Methods.

School Gardens

Nothing better illustrates the practical means employed by the New Education to enlist the co-operation of home, to increase the interest of pupils, and to afford practical education not only by doing something worth while, but by stimulating mental activity in virtually every branch of elementary school work, than the introduction into the curriculum of school gardening. School gardens have now evolved into the school-home garden project, and this in turn has proved such a great success that it has attracted the attention of municipalities to a method of utilizing vacant land in their limits that will afford to thousands of their citizens a substantial increase of income. It is now necessary for a progressive rural teacher to make a study of this new departure in educational methods. He can no more afford to be ignorant of this branch of new education work than he could afford, in an earlier year, to be deficient in common school branches.

Not a New Idea

Teaching gardening by school methods is a very old idea but it was strictly the vocational side that was held in view. It was to educate children in the practical calling of gardening. The viewpoint in the modern school garden has entirely changed. Gardening was introduced into the curriculum to vitalize school work, to afford interesting, healthful, intellectually stimulating occupations in the garb of gardening.

The first school garden was opened in New York City in 1902. Its success was pronounced, and other cities and larger towns made use of gardens. It is not necessary to point out the many strong features it presents, such as improved health of the children, increased vivacity and interest in the work, not to mention the vast number of educational features it presents. The successful operation of these gardens, however, presents a number of administrative problems difficult of solution. With the growth of home projects it was seen that all the splendid features of the school garden could be retained with greatly increased efficiency. Accordingly, the first phase of gardening in the schools is giving place to home-garden projects, regarded as the most successful home projects yet introduced.

One result, but little foreseen, is that in the guise of back-yard gardens it can be successfully adopted in cities.

Its Application to Rural Schools

It has been very extensively applied in rural schools. In some places the county has been organized for this work. Those who take part are enrolled, and directors are appointed by the superintendents to visit the homes and advise the pupils. In other sections the teacher himself must visit the homes, advise the pupils, and consult with the parents. These projects have proved popular and practical, they entail extra work on the teacher, but the results are so beneficial, make so directly for success, that the teacher can not afford to ignore them. Farmers who thought that their gardens were all that practical means could accomplish, have been greatly surprised at the results achieved by their boys on their garden plot. Naturally the patron's interest in the school is greatly increased and other new methods receive sympathetic consideration.

THE SCHOOL-HOME GARDEN PROJECT

The Children Themselves

But who can measure the benefits to the children? Habits of diligence acquired, business methods gained by keeping accounts, increased love of home, acquaintance with nature in one of her

most interesting aspects, a sudden appreciation of the value of education. If school methods can thus increase the yield of a garden, how greatly education must help him in life! There is besides increased sense of dignity. That is his garden, he is a general manager, his whole outlook on life is changed. Such results as these are what the New Education is striving for.

In City Schools

The home garden project for city schools has been a notable success, and has led to results not contemplated in the first instance. Briefly, this plan provides for the use of the back yards of city homes, and since in most cases this source is not sufficient for all the children, the school authorities are expected to use their good offices to secure the use of vacant lots for such purposes, so as to give, as near as possible, each pupil who participates in such a project, a plot of ground of suitable size for his garden.

The city further provides a special teacher, trained and skilled in gardening, for each elementary school. In many cases more than one teacher will be required. Part of the time this teacher is engaged in regular school work, such as nature study. This is apt to be an exceedingly interesting period as her pupils bring to the class the enthusiasm of their learning at first hand from nature. In the afternoons, Saturdays, and during the summer vacation, the garden teacher directs the work of the pupils, whether in the back yards or on vacant tracts of land. Early in the season, the teacher works with local groups of children, giving them object lessons in preparing the ground, after that instruction is given in the individual garden.

Strictly Business

The whole project is conducted on a strictly business basis. The boy pays a reasonable rent for his land, he pays for all tools and other supplies furnished him, but in return he receives the market price for whatever he has to sell. In most cases his own family will take all he can produce, but considering all the garden there will be supplies to sell, and in many cases school authorities assist the children to dispose of such surplus. For instance, in Dayton, Ohio, where there are nearly two thousand home gardens, the city instituted a free Children's Market where the children are allowed to bring their garden products and sell them to the public; and a committee of ladies teach the children how to prepare their products for market, how to handle them in the stands, and how to conduct the business of selling to the public.

Thrift and Industry

In one sense of the word the financial side of this project is the one least worth considering, but this is a period of economic stress in this county, and what the children can thus do is important. We read of striking achievement in some cases. The Bureau of Education tells us of a 17-year-old high school boy who conducted an extensive market garden project and cleared over $750.00 after paying all expenses. A twelve-year-old girl, in seven years of home garden projects, cleared over $1,000.00. She asserts, "I am able to buy all my school books, clothe myself, spend some for pleasure, and still add to my bank account." In another case, we read that three small children virtually supported themselves, and their widowed mother, from their school home projects. What striking glimpses are here afforded of education that makes for efficiency in life!

Other Advantages

It is not at all necessary to speak of other benefits that money can not estimate. When we hear of nine-year-old city boys getting up at five o'clock in the morning to attend to their gardens, carefully weighing the supplies furnished their homes, keeping exact records of all supplies furnished them, settling to a cent on the basis of real worth in each

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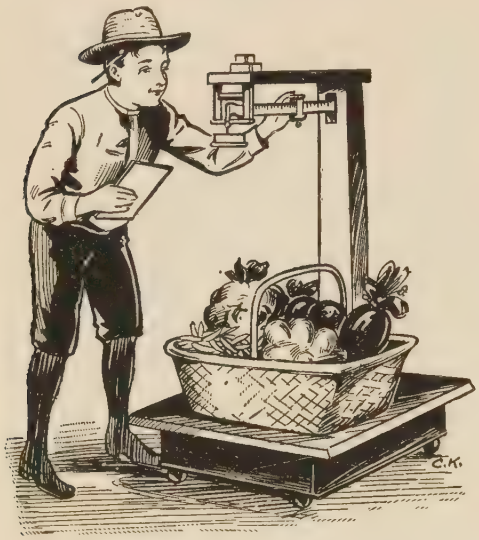
case, we know those boys are receiving training for the hand, the head, the heart, and the health, which, says the Bureau of Education, is the ideal training of the day. This is New Education

Further Extension of the Home Garden Principle

We have not exhausted the splendid results that directly or indirectly spring from this great forward step in New



"WEIGHING THE SUPPLIES FURNISHED THEIR HOMES"

Education methods. This takes us beyond the scope of the school, into the homes of the people. But the new education is concerned in whatever effects the welfare of the home. In this period of economic pressure, when as never before it has become necessary that the people learn lessons of thrift and economy, in view of what the children are doing, the subject has been discussed and eagerly accepted in some cities of making a greater and more systematic use of the vacant land areas within the city limits. In short, why not let the people themselves, even though living in crowded tenement house districts, have the benefit of a garden where they can produce needed supplies for their own use? To how many weary workers will this bring again the scenes of long ago, when robins sang in the orchards, tasseled corn beckoned in the fields, and laughing country brooks went rippling by.

An Example to Follow

This is how Dayton, Ohio, solved this problem, beginning in 1914. The work was undertaken with the co-operation and assistance of the Welfare Department of the city. The superintendent of parks furnished teams and plowed vacant lots free of charge to the families who expressed a desire and willingness to cultivate these lots in vegetables. The supervisor of gardens secured the names of such families. In most cases the families themselves cleaned up the lot of tin cans and rubbish, the Street Department removing the same to the dump. In this co-operative way hundreds of vacant lots were cultivated in 1915, flowers being planted on the front or street edge of the lots. The products of the gardens belonged to the persons cultivating them.

Its Value

Not considering the money value of the crops raised, it would require the services of a singularly gifted accountant to estimate the benefits of such a course. The difference between a vacant lot given over to tin cans and weeds, and the same lot in the smiling dress of a well kept garden, with a beautiful floral border, is a matter hard to estimate. Says the Director of Public Welfare of Dayton: "The city was cleaned up in this way more completely than it otherwise would have been, and the work of city beautification, conducted along other lines, was also largely advanced. The economic and social value of work of this kind is beyond estimate."

In Other Cities

Other cities are hastening to profit by this example. Chicago, with characteristic energy, is taking hold of the prob-

lem. It is estimated that there are within the limits of Chicago, 40,000 acres of vacant land. The schools will push school and home projects. The various park boards will have model gardens conducted by experts to serve as object lessons for home gardeners. Various city departments will do what they can to clean up the lots. We shall doubtless witness a most striking illustration of the practical side of the new education and note its great superiority to the older system. Let every teacher ask himself if there are not still other directions in which he can demonstrate practical results that assist in solving the problems of present day life.

The Widening Field of School Work

In the section just discussed we saw a home project developing into a movement of such practical value that it passed beyond the stage of school work proper, to be taken up by other departments of municipal government for the benefit of its adult population, but it still retains its educational mold. In its most recent form, it is educating men and women of mature years in a most practical way. But this is in accordance with the advanced thought of the day which holds that education is a life work, men and women being never too old to learn.

The Agricultural Club Movement

We are now to note how an agricultural movement so rapidly developed educational features, and of such value, that it has been taken over by the schools as a sort of gigantic school-home project, retaining, however, its agricultural mold; and this, in turn, illustrates the fact that every practical movement effecting the welfare of men and women is a fit subject for the activities of school. The initial stage of this movement was agricultural club organization not directly connected with schools. It is now being taken over by the state as a part of its rural school system. It possesses numerous educational features that go to the very heart of the new education.

Farm Demonstration Work

In 1906 the General Education Board began farm demonstration work. This was but another form of the extremely practical education this board was founded to advance. It is an effort to educate adult farmers in agriculture by the object lesson method. The plan is to induce farmers here and there to raise small patches of cotton, corn, hay and other products, following directions given by the agents of the department, who visit the farms where such work is carried on to give further instructions. The movement spread with great rapidity, and proved a wonderful stimulus to agriculture. One state after another where demonstrations were progressing, extended aid through various departments. The results have been most gratifying. It has been shown by the methods introduced that, in general, it is possible to double the ordinary yield of agricultural products. It is evident that we are here considering one of the most practical questions ever presented to our country, doubly so at this period of approaching economic stress.

Of More Value than Money

And yet the mere money increase is not the most important result. Other results that effect the home and advance the higher aspirations of life are sure to follow in the wake of practical education of this sort. Where the work is taken up there is soon to be seen a general clearing up of farms and improvement in equipment, more comfortable houses and better barns will be erected, stronger teams and better implements will be used; removal of brush patches and the establishment of good pastures noticeable. More important still, the disorganization characteristic of rural life and of the agencies concerned with it tends to disappear before the types of co-operation and intercourse that the demonstration movement initiates. Colleges of agriculture, farmers' institutes, and agricultural high schools are brought into increasingly intimate relation. These

contacts translate themselves into social and educational terms, resulting in a general awakening in educational matters.

The Boys' Corn Club

In 1908, the Corn Club idea was adopted as an adjunct to this demonstration work. A few scattered clubs had been organized here and there before that date. We must notice the widening sphere of activity and its approach to the work of the rural school. The plan to be worked out was briefly as follows. As far as possible, every boy should plant an acre of corn on his father's farm; in every neighborhood there should be a local boys' corn club; next, county and state organizations; finally, a federation of corn clubs; as a further stimulus local, county, and state prizes should be awarded; the topmost boys should be sent to Washington to meet the Secretary of Agriculture and to shake hands with the President. The expanded idea was an effort to appeal to the boy's imagination—assuredly an effective way of dignifying the farming occupation. But as all teachers know, merely decorative distinctions will in the long run prove ineffective, the boy, therefore, was to sell his crop and pocket the money! It will be noticed that there is no essential difference between this and home projects, such as back yard gardening.

A CORN CLUB BOY—HE IS TO SELL HIS CROP AND POCKET THE MONEY

It was not, however, directly under school management but it was tending that way since county superintendents were largely interested in the work, and through them the schools were beginning to take it up.

What is a Corn Club?

To one unacquainted with the nature of such a club, it may be explained that it is an association of boys that enter into a competition to determine which one can grow the most or the best corn on a certain area of ground, under def-

inite rules of planting, cultivation, and exhibit of their product. The same method is employed in connection with other agricultural products, such as cotton, potato, and fruit clubs; pig and poultry clubs; clubs for live stock and bird study. For girls these contests have taken the form of bread-making, canning, and sewing clubs. They can join with the boys in gardening and poultry contests. It will be noticed that all these clubs concern country life, which is the subject of rural education. As a result the schools interested themselves in the work with uniformly satisfactory results. They have proved a wonderful incentive to arouse interest on the part of the pupils, and to secure the hearty co-operation of the home. They are another extension of the home project idea concerning which rural teachers can not afford to remain ignorant.

Growth of the Movement

The growth of club work is itself the best proof of the enthusiasm aroused and the substantial material results achieved. Many states are now organized for national club work. Boys and girls in all parts of the country are responding with enthusiasm to the club idea and are securing marvelous results. In states where the average yield of corn to the acre is from twenty to forty bushels, the clubs have shown results from seventy-five to more than two hundred bushels to the acre. Other clubs interested in other agricultural product have shown like results. It has been estimated that if all the farm boys now in rural schools could be interested in club and home project work, the resultant increase in agricultural wealth in the nation would be almost beyond computation.

Girls' Canning Clubs

Girls' canning clubs are organizations planned to interest the girls in home projects, as the agricultural clubs interest the boys. In their wonderful growth the extraordinary interest aroused in school and home, the results achieved, the canning clubs are a fit parallel to the various agricultural clubs for boys. Let us consider the work of a tomato club. Each girl takes one-tenth of an acre and is taught how to select the seed, to plant, cultivate, and perfect the growth of the tomato plant. Meanwhile, portable canning outfits are provided to be set up out of doors—in the orchard or the garden—and trained teachers of domestic science instruct the local teachers in the best methods.

When the tomatoes are ripe, the girls come together, now at one home, now at another, to can the product. It is done in the most up-to-date fashion. The girls are taught the necessity of scrupulous cleanliness; they sterilize utensils and cans, seal and label; and manufacture an easily marketable product. Naturally, other garden produce and poultry soon become subjects of interest and care. A representative exhibit would contain pears and peaches, chow-chow and tomato soy, mustard, pickles and pickled onions, corn on the cob and preserved plums. The girls write essays on the "Life History of the Tomato and Its Use," "Gardening and Canning Arithmetic," "The Value of Vegetable in the Daily Diet," "How to Set a Table," "How to Cook a Piece of Meat." Not the least pleasing result to the girls concerned is the financial returns. We read of profits up to one hundred dollars made.

Educational Value of this Movement

But what principally interests us is the educational value of these clubs. They have become a part of the rural school machinery. The co-operation of rural schools is everywhere sought and encouraged. The community spirit is strengthened. There is a growing bond of interest between home and school. One of the most marked results affecting the school has been larger enrollment, more regular attendance, and greatly increased interest.

Individually, the members of such clubs have been led to observe more closely, to recognize good and bad qualities in the products they have grown, have learned something of the value of labor, the cost of production, and the keeping of simple accounts with different farm and household affairs. Their views

PORTABLE CANNING OUTFITS ARE SET UP OUT OF DOORS

and in the insects, fungi, and other various conditions affecting their work. They have met and learned to solve some problems in the improvement of plants, fruits, animals, and house work; they have been broadened by contact with others, and finally, the power of taking the initiative as individuals and responsible members of the community has in many cases been strongly developed.

The influence upon the community at large, the parents as well as the children, has been wholesome. Beginning with an awakening interest in one thing—better seed corn, for example—communities have rapidly extended their interest to other features of rural improvement, with the result that in the regions affected by the agricultural-club movement there has come about a general upward trend in the thoughts and activities of the people.

Practical Applications

All this is so emphatically in line with the objects of the new education that it is not strange the school has appropriated it. It has become essentially a home project, but on an advanced plane of development. An excellent opportunity is here presented to teachers which, if taken advantage of, should prove a great help to realize the fine ideals they entertain. If you, as a teacher, are willing to put forth exertions necessary to make your school an example of what the new education stands for, you will study the advisability of organizing some sort of a club; one for the boys and one for the girls. The survey of your district has supplied you with the necessary data. It may be a corn, potato or poultry club. Perhaps a canning club for the girls, or a home garden club. You will find the county superintendent or state department officials willing to co-operate with you, and the Department of Agriculture is ready with its bulletins full of timely suggestions.

State Wide Organization

But the trend of modern methods is to make this work compulsory on the teacher. It is a part of the duties he will be expected to assume just as he is supposed to teach the common branches, and he must either acquaint himself with these new methods or give place to some one who is up-to-date in his work. County superintendents are making it obligatory, as in Cook County, Illinois. Finally state wide organizations are being initiated by the state department of education, assisted by the state university. The recently enacted Smith-Hughes bill in Congress will greatly facilitate this movement. In some of the western states, state organizations are already at work with thousands of these clubs. All this constitutes a striking recognition of the practical education afforded by these methods.

What is Thought of It

The state of Nebraska is thoroughly organized for this work. The State Superintendent, Mr. Bishop, says: "The boy who carefully cultivates and studies the growth of a patch of corn, sugar beets, potatoes, wheat, or other plants will gain a new interest and a better appreciation of the value of careful thought applied in the study and the adaptation of seed soil fertility, and the intelligent culture of plants. Further, he will become interested in the best methods of marketing, and of the use of these plants as food for man and animal. This will direct him to study, to discussion, and to investigation, leading to a knowledge of systematic feeding and caring for live stock, to a study of animal adaption and needs, and to a careful consideration of the financial problems involved." This is education.

What It Will Do for Your Patrons

The farmers' amused skepticism regarding the efforts of the boys to raise corn, or of their girls to raise tomatoes, will give place to absorbed interest as they are convinced by the most tangible of all evidence, their own senses, that education pays even in such a time-old field as farming. This result has followed in so many cases that it is no longer theory. There is a sudden awakening of interest in education, the school seems far more important, there is a generous response to its needs. The Bureau of Education regards this movement as one of the most practical developments of the new education.

Influence on the Community

One of the most beneficial results has been the influence of this movement on the community. We have just mentioned that members of the canning club meet at the homes of the members. There will be other occasions on which the clubs will gather. Naturally, at such times the homes where the members meet are put in order with more than usual care. Tables are properly set out and decorated, bouquets of wild flowers appear here and there about the rooms. The boys and girls come; mothers and fathers come; the neighborhood is there. Thus social interest is kindled about the doing of something worth while. There follows a spirit of mutual helpfulness, mutual concern, mutual affection. This sort of thing lays the foundations for co-operation in larger and more important things—in the church, in the school, in charities, in business.

Assistance in Teaching

Teachers should also consider the material that the activities of such a club place at their command that will add new life to their work. Consider arithmetic. Numberless practical problems arise in connection with club work. The problems given on a preceding page are illustrations of what is meant, and so of every branch of school studies. Let us suppose the boys of a school are interested in a corn contest. Consider the live, practical geographical questions, not presented as stereotyped questions from text books, but questions directly concerned with the work of the boys.

What countries raise corn? Why will it not grow well in England? What determines the climate of a country? The season is quite apt to be too wet or too dry. Why? How do their products get to market? Teachers can not afford to overlook such a means of vitalizing their work. Do not infer that all teaching should be centered on the contests. Not that at all, but as supplemental work to the three "R's" in general, here is ready means of vitalizing work in those branches.

To School Patrons

Since whatever affects the welfare of the school affects you and the entire community, you are interested with the teacher in having the school take advantage of every practical feature that increases its efficiency. You should acquaint yourself with the details of this movement and lend your assistance, should one of these projects be decided upon. Encourage your children to take part. Let them have the use of the small plot of land that will be necessary. Second all efforts that tend to the formation of high ideals in the children's minds. Do your part to arouse interest in the community.

Boy Scouts, Girl Scouts, and Camp Fire Girls

It is proper to mention the work of these organizations of young folks since what they are doing is directly in line with modern ideals. It is education of the greatest worth, since the aim is to reinforce all agencies that make for right living and character development and is supplementary to that of the home and school. The program for the boy scouts is intended to stimulate the virtues of chivalry, honor and good citizenship. It is based largely on the method of doing, in order that they may learn to be resourceful, and self-reliant in all situations in which they may be placed.

These movements have already attracted the attention of the Bureau of Education, for educators are interesting themselves in it. The success of Boy Scouts depends upon the voluntary leadership of men of high ideals to act as scout masters, and quite a large percent are public school teachers. The Girl Scouts and Campfire Girls are movements that seek to impart to girls education that will fit them for womanly activity in life, that is to say home-making in the truest sense.

But such achievements are most earnestly desired by the new education. It is from such heights as these that the most satisfying view of the whole educational field is obtained. Since as in the Agricultural Club movement there is visibly an approach to the school, it is quite possible that in some form these organizations will become a part of the school system. Some educator, who is also an organizer with largeness of vision, is going to organize the boys into one division, the girls into another, with the intention that they also shall learn by doing the finer things of life. Why not make a study of this project? Perhaps you can make an incipient organization in your school. Your design would be to assist your pupils to form wholesome, broad-minded ideas of the duties of mature life that are so rapidly approaching. This would be modern school methods of the very first rank. It pays to lead in such work.

Questions for Consideration

1. Has your state any state wide club organization for club work? Are home projects of any kind agitated in your section?
2. Can you not organize one of the simpler projects at any rate? One of the helping-at-home projects if nothing else?
3. Do you think that a school garden could be made a success in your school? How about home garden projects? Talk it over with your pupils and patrons.
4. Character teaching is at present an unworked field in education. Can you think of any club organization that might further such an end?
5. Do you know where to apply for information on club organizations? If not apply to your county superintendent.

"A garden must be looked unto and dressed, as the body." —*Geo. Herbert.*

"No child who has ever loved a garden, will despise the farmer, for he has learned by experience to respect manual labor, and that brains and hands must work together to bring good crops."
—*M. Louise Green, Ph. D. (Yale).*

"There is pleasure in working in the soil, apart from the ownership of it. The man who has planted a garden feels that he has done something for the good of the world. He belongs to the producers.
"The principal value of a garden is not to give the possessor vegetables and fruit, but to teach him patience and philosophy." —*C. D. Warner.*

HOME-MAKING

The new education centers the activities of the rural school to a large extent in agriculture, because that pursuit is the lens through which country children view life and as the color of the glass held before the eye lends its hue to all on which we gaze, so do farm activities, the atmosphere of the country home, color with a subtle charm the world in which the rural child laughs and works and plays through childhood.

All educators know the way to approach the heart of the child with setting free of interest, and energy, is to let the instructions given harmonize with home surroundings, and so it is that within recent years home-making as a branch of school instruction has steadily grown in importance in both town and country.

In Rural Schools

The introduction of such branches into rural schools is comparatively recent, but their value is so generally recognized that teachers must make a study of them and do what they can to utilize some of the methods that have been shown to be of practical application. As a part of the school system, home making has received most careful study at the hands of the new education. What more important subject can claim the attention of educators? The home is the citadel of our civilization. The triumphs of science are meaningless unless they some way enrich home life. It is from the homes of our country, whatever their character, that children go forth to the larger world of society and state.

From the home parents and older children go forth to their daily toil, and to it they bring the products or the earnings of their labor, to be expended, wisely and prudently or unwisely and imprudently, for food, clothing, shelter and other necessities and luxuries of life. For most people home is the beginning and end of life. All their activities proceed from and return to it. Therefore, of all the arts those pertaining to home making are the most important, and of all the sciences those that find their application in the home, are the most significant. Realizing this, the new education has been quick to appropriate as its own every practical means to advance teaching of home branches in the public schools.

The Highest Calling for Women

The education supplied by these new branches is the highest form of education for girls, and it gives new meaning, new life, and zest to the ordinary branches. States that have organized for agricultural club work have also state wide organization for home-making purposes. State Superintendent Bishop of Nebraska thus expresses his conviction of the importance of these clubs. "The girl who learns to bake a loaf of bread, to prepare an edible dish for the table, to can a jar of fruit, to make an apron for the use of herself or a member of the family, or other simple home duties will later become the home maker and the home keeper,—the highest of all womanly callings."

New Methods

In rural schools this has called for new methods that all progressive teachers have to consider if they would have their school responsive to the needs of the day. The wine of progress can not be placed in the old bottles of traditional methods. The teacher will have to enlarge his vision from higher planes of thought and observation. He must, himself, feel the importance of home making. It is not meant that he shall henceforth devote all his energies to teaching home making branches, but arrangements must someway be made to lay the foundation for the essentials. By employing new methods much can be done even in one-room rural schools. It is the adoption

of such methods that marks the progressive teacher. The new education does not listen to excuses of lack of facilities; where there is a will, there is a way.

Connecting School Branches with the Home

Before considering methods of direct teaching, let us see what can be done by the teacher to connect the various school branches with the home life, of the children. Without setting about any specific teaching what can you do to implant in the mind of your pupils higher standards of living? Practically, every girl in rural schools is expected to help mother prepare the evening meal, set the table, wash dishes, and other details. You can draw illustrations from such simple duties, wherein the children can make practical application of the physiology, hygiene, arithmetic, and other branches taught.

Are you teaching physiology? What practical application do you ask the children to make of it? Do they urge proper ventilation at home? Do they understand simple hygiene as applied in the kitchen? Can they apply their lessons in fractions to the use of the measuring cup in kitchen recipes? or in estimating the cloth required for a dress? or the amount of paper for a room? How about cleanliness, air, sunshine, protection of food from flies and dust? The teacher can find in the problems of the country home material to illustrate every point necessary to understand the main branches. This is teaching in terms of home life.

What is Being Done

School authorities in virtually every state of the Union are awake to these needs, and are making provisions for instruction in these branches. Practically all progressive town schools, rural high schools, and consolidated schools have introduced them into their curriculum. Here and there rural schools, even those of the one-room type, have done what they could, and their reward has been increased interest of pupils and patrons, an aroused community spirit, and the enthusiasm that accompanies success. The trend of modern education is steadily towards making such instruction obligatory in rural schools.

Government Legislation

In various ways national and state government are recognizing the importance of such instruction. One of the most comprehensive educational measures of recent years, the Smith-Hughes act, extends liberal aid from the National government to states that make provisions to provide for expert instruction in rural schools on home making topics, and various states are accepting such assistance. It is evident that all rural teachers will have to make a study of these new branches and new methods, and do what they can even with meager equipment to practically apply the same.

A Word to Teacher

And, fellow teacher, our message to you, whether teaching in town or in country is to do what you can to spread the gospel of home making. To help you in this work we will lay before you an outline of what has been done, tell you of methods employed in other sections, and make suggestions as to what you can do. We shall endeavor to enlist the homes in enthusiastic, sympathetic cooperation by laying before them the conclusions of earnest investigators in home betterment work, knowing, they will profit by the same. Education for the home is co-extensive with life. It begins in the kindergarten, it continues through the years of school life, and does not lose its interest in later years.

In the Kindergarten

Little girls delight to play at keeping house. Advantage of this natural tendency has been taken to lay a basis for the appreciation of home in primary grades and in kindergarten work. In the

original method, a set of miniature toys is provided for each girl. Then by a combination of songs, exercises, and plays, the children are taught many little duties, which, when properly performed, go to make a home comfortable, such as arranging a room or laying a dinner table. Much is made of music and song. As an illustration, we mention the mud-pie play. Molding-clay is used as a substitute for dough, and the children knead bread, turn tiny rolls, cut out biscuits, and make pies. Thus with the simple substitution of toy appliances for real domestic apparatus, the children acquire principles of order, precision and neatness, essential to household service.

In Primary Grades

These methods, modified in one way or another, have been successfully applied in the lower grades. One approved method is to use one set of toys for the entire class, but the set must not be too large for the girls to handle easily yet small enough to be attractive and to appeal to those who so often find housework at home a drudgery. The following are given as figures of the approximate size of the various articles comprising the set of toys. Dresser three feet high; bed two and half feet long; dining table three and a half feet by two feet or twenty inches; dinner set, plates about the size of a dessert plate; stove fifteen inches long; kitchen cabinet, twenty inches high; other furnishings in proportion, as far as possible.

How Lessons are Given

Lessons are given somewhat as follows. Let us suppose it to be on setting the table. Chairs for the class are placed around the little table at a distance to allow the girls to work between the table and the class. Conversation is freely indulged in, and as the pad, cloth and dishes are arranged on the table the teacher explains about them. The fact that simplicity of arrangement is good taste is brought out. Habits of neatness are taught, such as dishes should not be carried against the clothes, silver should not be handled by the blade, fingers should not be put inside cups and glasses. This method can be successfully applied in schools fitted for kindergarten work.

The Kindergarten Doll

It is not out of place to remark that the kindergarten doll is made use of in some of the other grades. Some teachers use it in their sewing classes. The girls cut out and make articles of clothing for the doll. These can be finished before the task becomes irksome, yet they include the same training that would be given in making larger garments. We read that a doll is often used to teach items of personal hygiene, for instance the use of a tooth brush. It may be of interest to add that kindergarten methods are quite largely employed by settlement workers in imparting instructions to small children in crowded tenement house districts.

In the Grades

In the first place, the teacher should honestly try to realize the importance of this work. No branch you teach will exceed in importance those bearing on house education. But what is the ideal you have in mind? Work becomes drudgery unless you have some purpose in mind that you desire to achieve. If you have clearly defined ideals on these subjects, you can test the probable worth of any proposed course. Ask yourself these questions: "Will this course be an aid, in any way to better living?" "Will the girl be a better home maker if she pursues this course?" Such questions should be constantly in the mind of the teacher, they should be frankly considered and answered so that the time of the pupils be not dissipated on that which is without value. Let your constant aim be to teach young girls some facts that they should know, about the home and its management, so as to be able to conduct it on an efficient, economical, and sanitary basis; thus rendering the life of

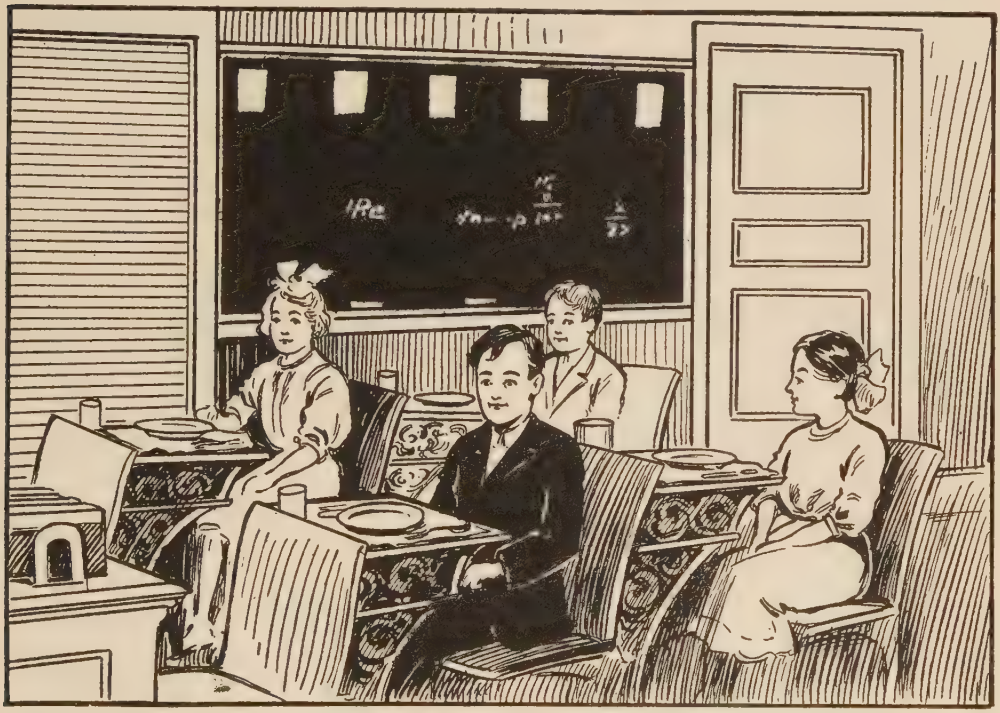
those within its confines richer, fuller of content and happiness, in accordance with all that is best in life.

What Amount of Instruction Should Be Given in Elementary Schools?

The extent to which home economics should be taught in the elementary schools depends upon the conditions of each school. In graded schools in towns, in consolidated schools, where conditions to the body; how much food one needs; how to set the table nicely; to make a bed properly; to keep the pantry in order; to wash the dishes in the easiest and best way; to clean a room nicely; to make plain underwear, a simple hat and a washable dress."

In Rural Schools

It is of course evident that a teacher in the ordinary rural school will have to



UTILIZE THE SCHOOL LUNCH TO TEACH COOKING

are favorable, the instructions can be much more extensive than in the average one-room rural school. The answers returned to a request for information sent out by the Bureau of Education may be fairly summed up as follows, which may be considered as an official answer to the question: "A student finishing the eighth grade should know something of practical cooking; of proper combination of food; something of the value of food be resourceful to impart needed instructions with her present equipment. In the model school building with a workroom, a satisfactory beginning can be made. In general, however, the wide-awake teacher need not fold her hands in despair. In this as in other departments of new school work, it depends to a remarkable degree on the teacher herself. One who goes resolutely at this problem will discover unexpected means

of solving it, even though she be handicapped by the meager equipment of a one-room house of the antiquated type. In addition, there is the new device of home projects and various club organizations. In view of what has been accomplished, the teacher that fails to lay the foundations of these requirements is behind the times and lacks in initiative ability that should characterize the true teacher.

Utilize the School Lunch to Teach Cooking

We have spoken about the warm lunch in the rural school, and have shown what valuable education features have been discovered in the same. One of the greatest inducements for rural schools to introduce such a lunch is that it can be utilized to teach cooking. This is the way one rural school solved the problem. The platform in front of the school is enclosed and fitted up as a farm kitchen with stove, table, cupboard, etc. Fire is laid before school and started at recess. At 11.40, the children responsible for the day's lunch go to the kitchen, while the teacher discusses with the rest the cooking lesson for the next day. At 12:20, lunch is served. In the early fall, canning of fruit and vegetables, to be used for lunches later in the year, is undertaken; a few weeks later, nuts are studied; in the butchering season, meats form the material of instruction. Thus the lessons grow directly out of the things that are at hand. This teacher was in earnest. It is needless to remark that her school is a great success. It illustrates once more the old saying about the will and the way.

Sewing in the Public Schools

In town schools this work is done in specially prepared rooms under special teachers. As is always the case, the problem becomes more complex in rural schools, especially in those of the old type. At the present day something of this kind is expected in rural schools. And the teacher eager to succeed must introduce some plan to give instructions in sewing. In the course of study adopted by the Illinois teachers, two years work in sewing is outlined for the fifth and sixth year. It is suggested for country schools that the time after the last recess on the first and third Fridays be given to this instruction. Often, this school work can be supplemented by home experience. In some cases, the article may be started in the school, to be completed at home.

It is suggested that the teacher when presenting a new stitch, or a new application of an old stitch, illustrate by drawing on the blackboard or by using a large frame of canvas. This canvas should be very coarse and light in color and the stitches should be made with a large needle and coarse yarn of a dark color. The pupil may then practice the stitch on a square of muslin, using colored thread. When sufficient knowledge is gained to enable the student to apply it, the work on the garment should begin. It is not wise to require a perfect stitch before the application is made. It is urged by all that the practical precede the fanciful. The needs of the home are always to be considered, and teachers are urged not only to teach how to sew, but how to judge and buy textiles, and to alter commercial patterns.

What Has Been Done

Teachers that imagine nothing can be done in teaching sewing in a one-room rural school, are not sufficiently inspired with the spirit that is demanded in the rural teacher of today. In the improved building of the future, work in sewing will be much simplified. The following is a record of work done in a one-room rural school. The girls first learned all the stitches with which they ornamented lamp-mats and work-bags. Then followed the practical stitches. Dish-towels and table-napkins were hemmed; cooking-aprons, cooking-caps, and carpenter's aprons were made. According to the daily time-table, half an hour a

week was devoted to the sewing. During this thirty minute period, the teacher could only give brief instructions regarding the advance work, consequently, most of the sewing was done by the children in leisure moments. Each day an older girl was appointed monitor of a group. During the day, when any girl had satisfactorily finished her other work, she took her sewing from her desk for seat work.

Home Projects

We have spoken of home projects as a means of securing the co-operation of home and schools. We now wish to refer to them as a means whereby the rural school can secure instruction for the pupils in home economics. Some teachers resort to the following method. Different household tasks are gone over in detail as preliminary preparation and instruction is given in certain processes, such as making pie crust or planning a meal. The girl then does this work in her own home as a part of the family housekeeping, and brings to the school a written report signed by her parent specifying whether the service rendered met the family requirements. It is evident that in home projects we have a means that can be utilized in virtually all schools to lay the foundation of home economic training.

What the Bureau of Education Thinks of Home Education

Various methods by which the sympathetic co-operation of public spirited ladies to make the teaching of home-making branches in rural schools effective have been suggested. The Bureau of Education suggests a series of lessons which may be largely talks on the part of the teacher which, if possible, are to be demonstrated in the near-by home of one of the girls. The talks are designed to emphasize such subjects as:

The beauty and sacredness of home life. In a simple way the girls should be given some insight into the sanitary, economic, and social problems that are involved in housekeeping that they may develop an increased appreciation of the importance of the work of the homemaker. The two most important things to be taught are cleanliness and order. Too much emphasis can not be put on the value of fresh air and sunshine, and the necessity for free use of hot water and soap. The value of property must be emphasized. Economy in the purchase and handling of house furnishings and equipment must be considered. Instruction should be given in the care and arrangement of furniture, and in the care of foods and clothing. Simple instruction in the care of babies should be given, since the children are generally responsible for the care of the younger members of their families.

How City Homes Can Help

The services of public spirited ladies in larger towns, who are desirous to help girls become more efficient in the common duties of house keeping is sought in a number of home projects. In Holly, Colorado, the Woman's Civic Club have adopted the following course: The girls of the high school are divided into four classes, as indicated by the year of the work they are taking in the high school. As many divisions are made of each class as are necessary to secure the best results. These divisions meet once or twice a week at the various homes in the city, and the girls cook, sew, and do other household work, such as washing, sweeping, and dusting, under the direct supervision of the teacher and the mistress of the house. A definite outline of the work to be done in the home is given to the class and also to the lady of the house, so that she may have the material and utensils necessary ready for the use of the girls, who do all the work and leave the house in the condition they found it, washing and drying all dishes and putting them into their proper places.

Club Work

Why not extend the principle of club organization so successful in teaching

agriculture to practical instruction in home management? This would be another method for the rural school to teach these new branches and thus meet the requirements of the new education. In a report on schools in one state, we read, "Excellent work has been done by teachers who have simply organized 'Home-makers' clubs' among the larger girls and have encouraged them to meet at their own homes and follow out the suggestions of the teacher or the directions which have come from the supervisor of the state."

A very simple, portable equipment is procured for the use of the club members, and the work is carried on under close supervision. The teacher is often the instructor, but again use is made of the service of ladies in the community who have the proper facilities and are willing to assist in the work of instruction, each lady selecting her specialty. These clubs often work in connection with the state organization, for it is well known that many states through the medium of the state university or the state department of education are organizing the rural schools for such work. In some states hundreds of such clubs have been organized.

"HOW CITY HOMES CAN HELP"

The Work of State Organizations

Where such a state organization has been perfected, definite instruction material is furnished by the supervisor of home economics to the teachers. If not

otherwise provided, the teacher herself must formulate such instructions. This includes recipes, methods, explanation, and emphasis of the important points of the lesson, together with a set of questions which review the lesson in detail. Each student has her special home economics blank book, in which all work must be written in ink. This book must be ready at any time for the inspection of the teacher that is responsible for this part of the work. The Elements of the Theory and Practice of Cookery and Farmer's Bulletins of the United States Department of Agriculture are used often as references. The recipe to be used is followed by the instructor, whether teacher or patron. Interesting results that have followed are the closer co-operation of patrons and school, and the introduction of daily hot lunches prepared by the girls of the club. Most of the material is donated by the patrons.

What You Can Do

We have surely written in vain unless home and school are convinced of the importance of this branch of new education work, unless they feel that they can be introduced in some practical form in any school and unless both are willing to work to make the effort a success. The home is vitally interested in making the school work so successful that the boys and girls will see opening before them a larger life that will come to its highest development amid country surroundings. To make such a result possible, both agriculture and home-making must be presented to them in their true light.

Home Schools

It is believed by many that the school will not become really efficient in teaching home economics until instructions can be given under actual home conditions. This is one reason why home project methods and club work that enlist the help of the home are so effectual. The ideals of today become the working conditions of tomorrow. Already, home schools have been equipped for work in various cities. This movement will doubtless spread. Such schools are actual homes, fully equipped, wherein girls learn by practice. Such a school is beyond the reach of the average rural school today. In the school of tomorrow, it will be an accomplished fact. One of the buildings constituting the school group in the school of the future will be fully equipped for instruction in home-making. We can not conceive of a more important development. There the common branches of the school of today will appear in their true light as the foundations on which is reared the imposing structure of farm and home—rural life—education.

Thrift and Economy

The end of all education is to make life better worth living. It is only right and natural that every one should plan not only for the necessities and comforts of life, but for at least the more modest luxuries. The work of our schools, then, is not only to equip the individual with the necessary technical ability to pursue some gainful vocation, but it is necessary to instill in the mind principles of thrift and economy. We have come nationally to a time of economic pressure. Our free lands are gone, the exploiting of wealth from the soil is over; national conservation, efficiency in production, and thrift in the household are the new watchwords. Progress for the average family group will turn now on the wise household use of resources more than upon increase of wealth. Truly we need still to increase efficiency in producing wealth, but intelligent consumption of wealth especially merits attention. This means the education of "The woman who spends," and emphasis upon domestic economy as well as upon industrial economy. It means training a nation's homemakers to the economic possibilities of their vocation.

How Thrift Can Be Taught

We can all see how this aim can be fostered in general. In cooking, we must

impart knowledge as to food values, how to conserve the supplies of food, how to cook economically, how to prepare appetizing dishes out of materials now discarded or but little valued. All these points can be emphasized in instructions given by means of methods we have outlined. The time has come when we in America need just such instruction as this. It is said that any European nation could live luxuriously on what we waste. As a nation, we have become careless.

In the Kitchen

Observations of practical life and scientific research disclose many mistakes in food economy that could easily be prevented through education. Expensive foods are used when cheaper ones are as nutritious, and might be made quite as palatable; the diet seldom shows a proper balance of fuel ingredients and flesh-forming materials; serious errors in cooking are made, and a great deal of fuel wasted; excessive quantities of food are eaten, and much nutritive material discarded as kitchen refuse. Today, under the spur of necessity, many people are learning, to their surprise, that by using improved methods of preparation, and judgment in selection, they can live better, at less expense, than they have been accustomed to, notwithstanding the prevailing high cost of supplies. It is truly the province of the school to emphasize the duty of exercising thrift and economy in the home.

In All Departments of Home-Making

But we need the same lesson in every department of home work. We must learn efficiency in home management, in kitchen equipment, and the arrangement and furnishing of the rooms. There is now a science of housekeeping. This can not all be taught in schools, but the foundation can there be laid that, in after life, will develop into practical, efficient home-making. This is part of the message for the home to which we will soon turn. It must be understood that the richest reward of the course here urged is not simply the savings of expense. But the saving of thought and energy of the housekeeper for the most important part of home-making: The exercise of loving care that watches over every essential affecting the welfare of the home circle.

The End Sought

And so we are brought once more to the higher aspects of our theme. The interests of the home, to secure which should be the great aim of education. And we conclude that in schools should be given to every girl, in whatever walk of life, in town and country alike, the training and education that will awaken her enthusiasm and enchain her interest in the vocation of home-making. And the precepts taught, and the ideals held out to her as to the scope of the home, must be an alluring, ever growing one, including all the essentials of a progressive life. The home must grow to include the enlarging activities and responsibilities of woman, so that her most vital interests may focus there, and give to her a growing ideal of the responsibility, the dignity, and the beauty of life that becomes the "vision" for all humanity.

By Way of Review

This section has thus far been written more especially for teachers of the one-room rural schools. We have been urging the necessity for new preparation, new ideals, for organization and methods. Our further discussion will take us beyond the range of such schools. Before passing on to other topics let us briefly recall the main points that constitute the new education and the new methods that must henceforth claim the efforts of all rural teachers desirous of success. What we have considered includes virtually nothing but what a teacher of average ability, energy, and zeal can accomplish.

You must not be discouraged because of present equipment. It is true that in the future when consolidation shall over-

take your section, much better work can be done, but you can not afford to let your district wait for that time. You have only to reflect on what has been done to gain enthusiasm to do what you can with your present surroundings. You can work for more beautiful grounds and better buildings, and you can adopt some of the new methods now discussed.

You Can Do the Same

In an official communication, we read of a teacher in a one-room school of the old type, who determined to do what she could to improve conditions. Under her directions, the school children collected stones and made borders for flower beds in front and at one side of the building. They also trained vines over the outbuildings and maintained a small experimental garden. At intermission periods, the teacher and pupils talked over plans by which they might learn to cook and to sew, to make various articles of diet, to can fruit, and to cultivate flowers and vegetables.

The boys took interest in corn and potato growing and other lines that especially appealed to the individual. The usual results followed: Her school ranks among the very best in the county. The community has been much benefited in the interest taken by the young people in the work of the home. The school has been much benefited by the interest awakened among the patrons of the school. The whole district has been inspired by the faithful work of that one teacher. What can better engage the attention of teachers than methods that lead to such results as these?

Questions for Consideration

1. What can you do to connect the instruction you are giving in your school with the home duties of the children?
2. The Bureau of Education recently asked the opinion of teachers as to what amount of Domestic Science teaching should be given in the grades. What is your opinion?
3. What are you doing to impart instruction in the principles of cooking? How about the school lunch? Home projects?
4. What are you doing about sewing?
5. What do you think of the suggestion of the Bureau of Education of Home making talks to be demonstrated in near-by homes?
6. Can you think of any way of inculcating needed lessons in thrift?

"Introduce a little active participation in the care of plants and grounds, and at once to each and every child the garden becomes 'our' garden, and an injury to it a personal affair; any praise or merit becomes a comment on something 'I made or helped make.' This brings out the care of public property, consideration for others and responsibility toward public good."
—*M. Louise Green.*

"The love of rural life, of honest work, the habit of finding enjoyment in familiar things, is worth a thousand fortunes of money or its equivalent."
—*Henry Ward Beecher.*

"The garden is the outer class-room of the school. It is a happy field of expression, where the boys and girls work among growing things, and grow themselves in body and mind." —*R. H. Cowley.*

THE MOVEMENT TOWARD CONSOLIDATION

It is evident that in many respects the ideals of the new education are such that they can not be fully realized in many school districts as now constituted. Owing to many causes, this will be the condition in the majority of rural sections for years to come. Under such circumstances the new education does not ask for the impossible. It concerns itself in providing methods by which progressive teachers can make a beginning in these new directions. It aims to improve as far as practical present conditions, and urges improved buildings, enlarged and beautified grounds. It further asks teachers to make use of home projects, finding in them a ready means whereby to put life into what technical instructions can be given in the average rural school of the present.

The need for improvement is so urgent, however, that there has been a strong movement toward consolidation of districts. Wherever it has been practical to introduce this innovation, a great improvement has been noticed and consolidation is regarded by many as the final step in a course of development that will result in a system of rural schools that shall meet the expectation of enthusiastic teachers that have worked under all sorts of discouragements to make their schools responsive to the needs of the present.

Consolidation Characteristics of the Present

Decades ago, the movement toward consolidation in business began. Scattered lines of railroads drew together in great systems. In various lines of manufacturing, multitudes of scattered, small, poorly equipped shops, employing few workmen, gave place to the centralized factory, covering many acres of ground, equipped with the very latest labor saving devices, resulting in a great saving in expense and great increase in productions. This tendency toward concentration in commercial and business affairs is irresistible.

The same principle applies in educational matters. Formerly, there were a great many small colleges scattered over the Eastern and Central parts of our country. The tendency has been for them to unite in a few large institutions. And so by a quite natural process of evolution, we have come to the consolidated rural school.

The Aim Sought in Consolidation

The end sought by the new education in furthering consolidation is the same as in present day business methods,—efficiency in production. In the present district system, many teachers endeavor to do for many small classes what a few teachers can do for a few large classes in consolidated schools. The present system of district management is on the plane of development reached in manufacturing before factory days.

Of even greater importance is the fact that in consolidation we have a system of schools which, if kept true to the ideals of country life and not allowed to become simply town schools moved to the country, will afford country children an education fitting them for the conditions surrounding them, equal in that respect to the best results secured for town children in their magnificent, graded schools, fitting them for the surroundings of town life.

What is Consolidation?

The term consolidation is used when two or more school districts are made into a single district; one school in one building replacing two or more small

schools in several buildings. In some states when but two schools are replaced by one, the new school is called a "union" school, the term "consolidated" being applied only when three or more schools are replaced by a single school. In other sections the term "consolidated" is used only in speaking of a school to which children are transported at public expense. Consolidation in its best form takes place when schools, not forced to close for lack of pupils, are deliberately abandoned for the purpose of creating a larger school where more efficient work can be done, or equivalent work at less expense.

Essential Principles of Efficient Consolidation

Our object is to impress on rural homes the need of consolidation if they would provide their children with education that will dignify country life, and enlarge their conception of its possibilities. We can not consider every feature of consolidation, but will speak of some details communities must keep in mind if they would have really efficient consolidation. If several districts, or perhaps an entire township, are considering incurring the expense of new buildings for a consolidated school, the question of location, etc., is of great importance. It should be added that the unit for school purposes is not the same in all states. In some it is the old district system; in others, the township; in still others, the county.

Consolidation for Local Needs

In this form of consolidation the schools, of which there may be several in a township or quite a number in a county, where that is the unit of administration, as in Tennessee, are not located in strictly geographical centers, but wherever they will most conveniently accommodate the children that are to attend. For many reasons, this seems the true principle to follow. All that should be insisted on is that a sufficient number of districts be consolidated to secure the benefits of a real consolidated school, that is a graded school with two or more teachers equipped to apply modern methods. Simply an enlarged district with old district methods is not a step in advance.

Location in Towns

In a number of instances, a mistake was made in concluding that the benefits of consolidation can be secured in rural sections, by closing rural schools and making arrangements for transporting the children to near-by towns, where they could have the benefits of the town school that was splendidly equipped for town purposes. But the ideal of the new education is to teach rural children in terms of rural life. This aim will not be realized if consolidation is to consist in taking them to towns. This was the weakness in the old idea of township high schools. They were sure to be located in towns and conducted in accordance with town ideals.

Country Location

The ideal location is in the heart of a rural community, where the children are surrounded with the forms of life with which they are most familiar. Locate the school amid such surroundings, where practical object lessons in agriculture can be drawn from smiling fields, in close proximity to ample school grounds made attractive by landscape arts, where school gardens and demonstration farms emphasize the lessons taught and inspire to successful home projects; make the school building commodious and fit it up with work rooms where manual arts and home-studies can be practiced; in some convenient part of the ground locate a tasteful home for the teachers, which shall exemplify the model country home. Such is the ideal which should inspire those seeking the benefits of consolidation.

How the Movement Began

As in other forward movements, the trouble was to make the start. It was

simple enough after some section demonstrated it. The old district system is so familiar to us that it was put in our school laws as an essential part of our school system, and in most cases the legislature had to pass laws permitting consolidation. The advance won during recent years is shown in the fact that in some states, under certain conditions, consolidation is now compulsory.

Probably in the older states from very early times schools were abandoned for the sake of economy, and the children sent to neighboring schools. In Massachusetts, in 1869, the legislature authorized school trustees of an abandoned district to pay for the transportation of children to a neighboring district, out of the school funds. The first district to take advantage of this act was situated near Quincy, Massachusetts. In 1874, this district, with a school of less than a dozen children, closed the school, and transported the pupils to another one-teacher school, the union making a school not too large for one teacher. The district abandoning its school paid tuition and transportation expenses, finding the outlay less than the amount that would have been required to maintain the old school. No special educational advantages came to the pupils transported, except from association with a greater number of children.

The First Consolidation

The first consolidation for the definite purpose of securing for the children better educational opportunities also occurred in Massachusetts. In 1875, three district schools adjacent to Montague, were abandoned, and a new brick building erected at a central location, to which the children were transported at public expense. This school is still in a flourishing condition. The building was made modern in every respect. It is heated by hot air and is properly ventilated and lighted. It has in-door toilets and running water from a neighboring hillside spring. It affords opportunity to study consolidation in every phase of the movement, and especially the question of transportation, which in many communities seems a very serious matter.

The Spread of the Movement

The movement spread from Massachusetts to other Northeastern states and the West and South, until now it is doubtful if a state can be found without several examples of successful, consolidated schools. The first consolidated school in Ohio was the Kingsville school, in Ashtabula county. This was so successful that the school law of Ohio now authorizes any county to consolidate its schools. Consolidation in Indiana was considered as early as 1856, but nothing of importance was done until 1889, when the legislature passed an act recognizing the right of township trustees to pay for the transportation of pupils to consolidated schools. A large part of the state has now provided for such schools.

The Situation at Present

This type of school is in successful operation from Maine to Florida, from Massachusetts to Washington and Oregon. It is therefore not limited to any particular geographical or economic conditions. The plan has proved successful on the plains of Texas, among the hills of Vermont, and on the sparsely settled prairies of North Dakota. It must not be implied from this success that all district schools are soon to be replaced by consolidated schools, or that the one-room school will henceforth be remembered only as history. Many conditions render this impossible. There are now in the United States something over two hundred thousand one-room country schools, while but a few thousand consolidated schools have been organized. However, progress toward consolidation is rapid at present; there is not a state where it is not being agitated; in many, compulsory or favorable legislation has been enacted. It is estimated that more schools have been consolidated within the last five years, than in all the time preceding since the movement began.

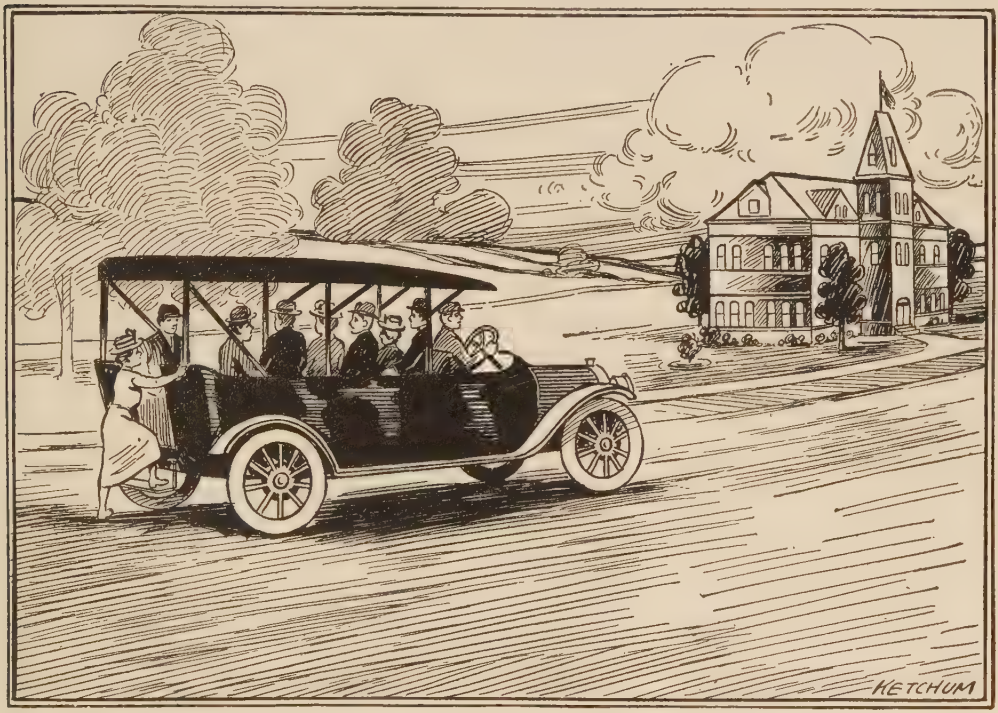
Transportation

Transportation is the great problem to be solved in consolidation. This is the objection sure to be made by parents when the question of consolidation first comes up, and some objections are well founded. The distance that children have to be carried is an important point to be considered. Where it is too great, children have to leave home too early in the morning and are returned too late in the day. In such cases, the area embraced in consolidation is too large. In practice, where the distance to be transported is not too great, benefits due to consolidation are very noticeable.

The attendance is larger, that means that a greater percentage of pupils of the school age are going to school; therefore we are getting more work out of our schools, we are increasing their efficiency. The attendance is more regular and tardiness is eliminated because the wagons run on schedule time. The health of the children is conserved, since they do not walk through the rain and mud or wear wet shoes all day. Other educational benefits will be considered later.

What Means for Conveyance are Provided

In general, the school authorities provide for the conveyance of the children.



"IN A NUMBER OF STATES AUTOMOBILE BUSSES ARE COMING INTO USE"

In some states provisions are made by law for allowances to parents or guardians that transport their children if it is not practical to use the means provided by the school officials. This is often the case in sparsely settled districts, and where roads are poor. In such cases the children may be seen going to school in buggies or on horseback, on bicycles or motorcycles. One of the disadvantages of this method is that it does not assure

regularity of attendance and freedom from tardiness.

Public Conveyances

In most cases, the officials of the consolidated area make arrangements for transportation. The wagon is the usual form of conveyance selected, though many children in various parts of the country are transported by steam railroads or electric lines. In a number of states, automobile busses are coming into use and this will become more general in time. In Virginia, on one route, a gasoline launch is used. The wagon must be well built, strong, safe, and warm. In some states, the state authorities prescribe the style of wagons which must conform to specifications. They must be covered and equipped with side curtains to keep out wind and storm. Glass sides are much better than curtains, as the children are not then sitting in semi-darkness; and, in addition, they can see the country as they pass along. Doors should be provided at both ends.

The best wagons are built so that the driver sits inside with the children. He is then in position to require proper conduct and conversation on the part of the boys and girls under his charge. In cold weather, the floor is covered with rugs or with straw, and lap robes are provided. Often, wagons are heated by coal or oil stoves placed sometimes inside, sometimes outside under the wagons. Footstones or planks of hardwood are sometimes used, being heated at home in the morning, and on the school stove for the return trip. Artificial heat, however, is unnecessary except in extreme cold or on long routes.

Running on Schedule

Usually the school wagon follows a definite route, and children meet it at fixed places on the route. The wagons are required to run on schedule and leave fixed points at set time. Most states provide by law that the route must be so established that in no case children shall be obliged to walk to meet the wagon more than a reasonable distance, generally limited to approximately a half mile. It will be noticed that children receive practical lessons on the necessity of promptness. What can be of greater importance?

The Drivers

It is evident that much depends on the driver. Great care must be taken to secure drivers that are trustworthy, temperate, careful, and whose word will be respected and obeyed. Children readily recognize the right of the school to dictate their conduct while they are riding in wagons owned or leased by the school and driven by men or women that have the same authority over them as their teachers. In fact, most of the objections to consolidation concern transportation, and the personal character of the driver is the most important factor in this respect. When proper vehicles and proper drivers are secured, most of the trouble anticipated by those opposed to consolidation does not appear.

Consolidation and Good Roads

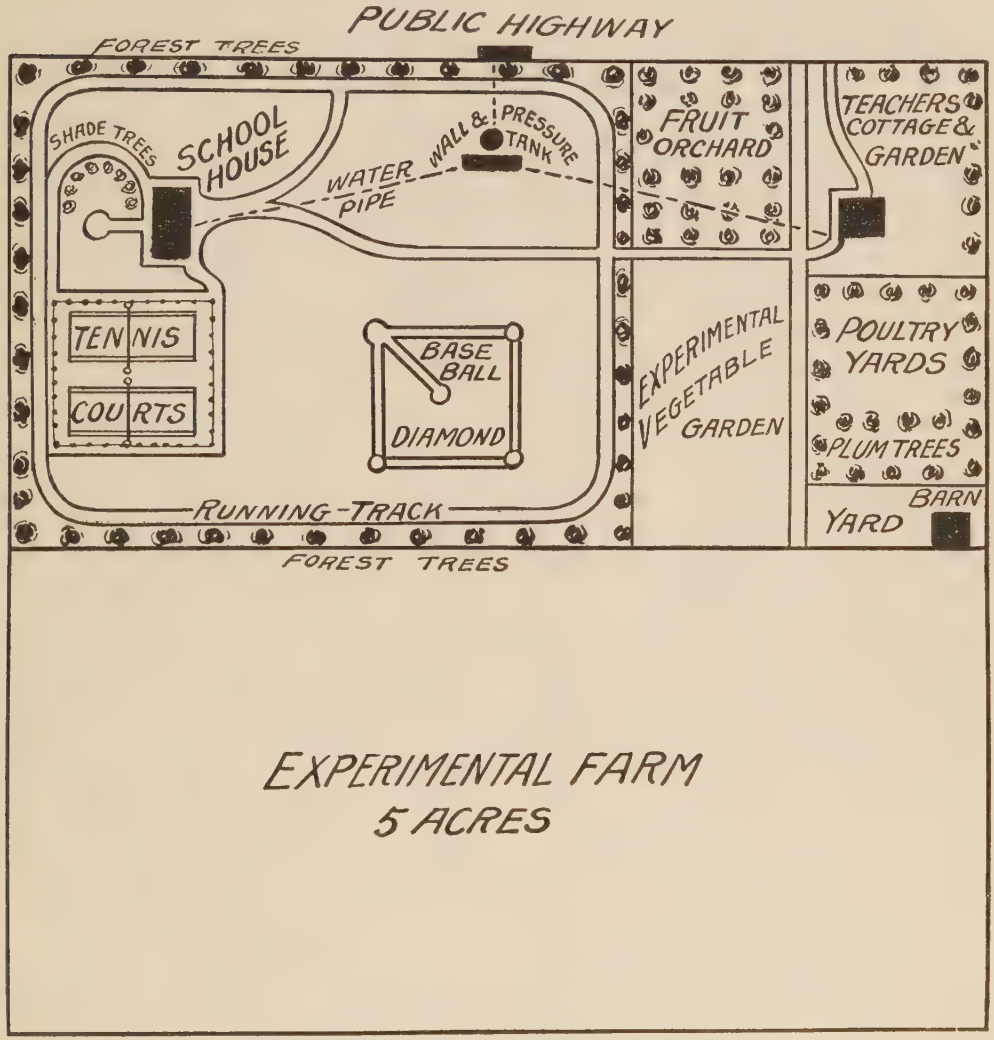
It is evident there is an intimate relation between consolidation and the roads. The fact that a large number of wagons are used in all sections of the country, over all sorts of roads, is evidence that the success of consolidation does not wholly depend on the roads; but good roads are a great help, and it has been found by experience that school consolidation has been a great stimulus to good road making. In this case we have illustrated the fact that improvement in one direction is generally followed by like improvement in others. Good roads are a necessity in themselves, but since they are a factor in successful consolidation there is increased impetus given to their construction.

Grounds for Consolidated School

Since the consolidated school is to serve many purposes that the single dis-

trict school can not, it needs larger grounds and more ample equipment. It will defeat the very object it is intended to secure if the grounds be inadequate.

The Bureau of Education suggests the following design for a ten-acre school ground. Half of it is devoted to an experimental farm. Three acres for



"DESIGN FOR A TEN-ACRE SCHOOL GROUND"

The state law of Iowa provides that the least amount of land for a consolidated school shall be four acres. It is safe to say, however, that the average amount provided is at least ten acres. Many cases exceed this amount.

school building and playground spaces. All the upper part to be devoted to lawn, dotted with trees, shrubbery, and flowers and provided with curving walks. The teacher's home is observed in one corner of the remaining two acres sur-

rounded by the garden, orchard, and poultry yard. In all its essential details, and with even increased area, that design is realized in many sections. Is there any doubt that amid such surroundings agriculture can be made a most vital study? Practical demonstration work can be given. All necessary home projects lose their appearance of theory, they are practical, real; before the children are models. If there be any virtue in the new methods we have been urging, they can be easily demonstrated with such surroundings.

The Building

All the excellent features we have been urging in the model school building are of course provided in the consolidated school. Work-rooms, laboratories, a library, and rooms fitted for manual training and domestic science are prepared. The buildings vary in cost from three thousand dollars to much higher figures. They contain from two to ten or twelve rooms, and these rooms exemplify the very latest methods we have been urging. They are generous in size, lighted from one side, high windows in the rear.

There is an assembly room that will seat between two and three hundred people; the seats in this room are movable so they can be gathered to one side if necessary. This assembly room is intended to be the social center of the community, where lectures can be given and social gatherings held.

The Equipment

The equipment is ample in all respects. In the various rooms are necessary maps, charts, and globes. There are dictionaries and reference books for the advanced pupils. Supplemental readers for the grades, a general library and reading room, tastily adorned, for general use. In short, every feature intended to emphasize new educational ideals, that appeal to the esthetic principles of our nature, that make for efficiency in life are here provided.

This building is set in the midst of rural surroundings, and there is about the grounds the inspiration of nature in her most attractive dress, hay scented breezes, peaceful scenes of grazing flocks and herds. The well kept teacher's home, the orchards, garden, and farm invests all with the air of a prosperous country home. These are some of the advantages that can be secured by consolidation of rural schools. The education must remain, however, suited to rural needs, taught in terms of rural life, emphasis placed on agriculture and home-making branches, supported by various forms of home projects, linked up with state-wide organizations, and the new gospel of community up-building must be faithfully taught.

The Success of Consolidation

When we consider the evident advantages of consolidation it is not strange that it is regarded by many as the final step to be taken in bringing rural schools to the state of efficiency demanded by present day needs. It will still remain necessary for rural school teachers enthused with true ideas of their duty, to work along the lines we have suggested for school betterment in their district. It will be a long while before consolidation can become the general rule. In many cases the present district form will continue. But improved grounds, buildings, and new methods set forth in this chapter will confer substantially the same blessings on rural children in all sections.

A Typical Illustration

To illustrate the advantages of the consolidated system over the district system, we will consider a county in East Tennessee, the county in that state being the unit of school organization. About sixty one-room schools scattered up and down the narrow valleys between mountain ranges have now been consolidated into sixteen schools. The intention is to erect twelve more buildings to complete consolidation for the entire

county. Mining is a prominent industry though the valleys are suited for agriculture. The condition of education was formerly neither better nor worse than in similar sections: a fair statement is that it was backward, comparatively little interest being taken in the schools by the people generally.

Most of the buildings are of six rooms, the smallest ones are two rooms, the largest nine rooms. The average cost of these buildings was between five and six thousand dollars. They are substantial brick buildings. There are rooms fitted up for agriculture, manual training and home-making branches, which are obligatory with option of choice. Two years of high-school training are provided. Each building is supplied with running water, piped from springs on the neighboring hills. Seven transportation wagons are required for the schools now built.

The school grounds are from ten to fourteen acres in extent, a part of this area is used for school gardens, a large part as a model farm. Each school is provided with a cottage for the use of the principal and his family and is to serve as a home demonstration, so that people living near can see how even in rural sections, homes can be provided with running water, bath rooms, and sanitary closets, not to mention other details of modern home-making.

A Comparison

Measured by the educational facilities of this mountainous county, many counties in rich agricultural states are so far behind that there is no comparison. They represent different planes of development. The new system of that progressive county has cost considerable, but potential results, such as a general awakening in educational matters, aroused public spirit, activity is all that enriches life and makes for improved homes, happiness and efficiency in general, can not be estimated in money terms. This is new education, new methods. It is that for which progressive homes and schools should work.

In School Cottages

Teachers' cottages to which references have been made constitutes still another departure from old methods. Such a cottage is a necessary part of the consolidated school plant, but they are by no means confined to schools of that type. Probably the first instance of a cottage for the use of a teacher in a one-room district was built in the state of Washington. Apart from the use of such cottages for consolidated schools, the idea of a teacher's home for a rural school has spread until there is probably not a state where one or more example of school cottages, built for the use of district school teachers, can not be found.

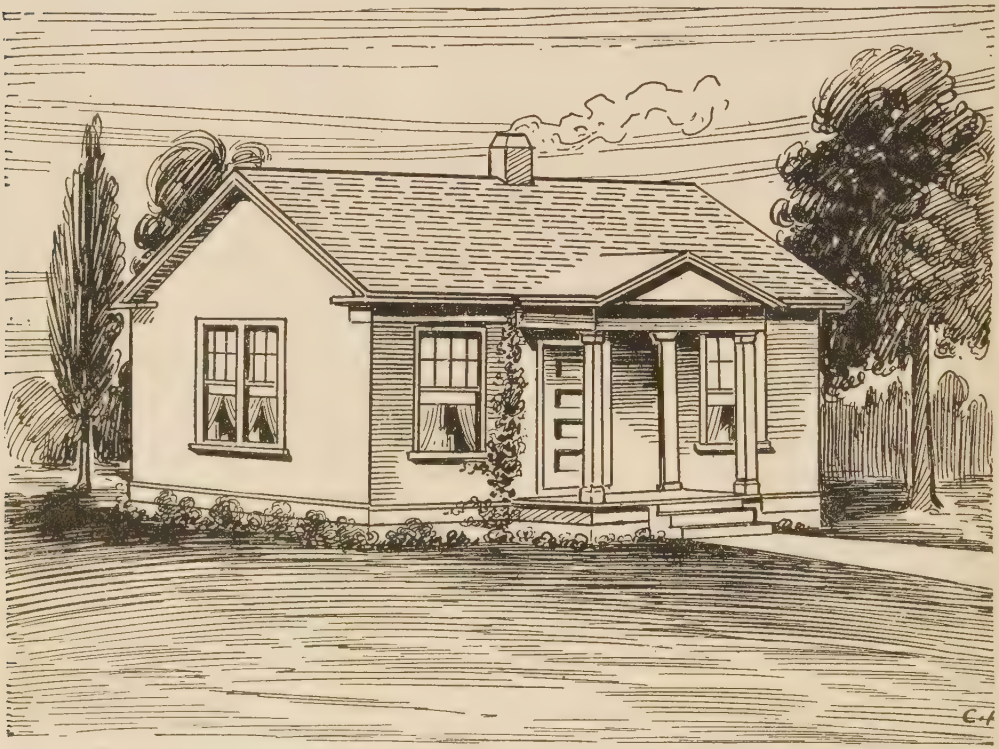
The Bureau of Education has carefully investigated this latest step taken by the new education. In a bulletin on this subject, the Bureau points out that if the country school is to do the work now generally required of it, a teacher's cottage is necessary, at least in many parts of the country. There are, of course, difficulties in the way, but it points out that satisfactory progress in country schools seems to demand this change, in many cases at least, and so in time it must become the general rule.

What Is Required

In this is seen the genius of the new education. Teachers' cottages seem to be necessary to real efficiency in rural schools, they must then be provided. Perhaps in their general use they will keep pace with the spread of consolidation. Still if consolidation be delayed, teachers' cottages will not in all cases wait for such a school. The testimony is that wherever employed they have led to most satisfactory results. The general tone of community life has been raised, the community providing them can secure better teachers, and successful teachers are satisfied to remain where they are furnished an attractive home.

What Kind Should Be Built

The Bureau of Education has made certain suggestions that should be heeded. It asserts that: The house should not be expensive, but neat and attractive, a model for the community, such a house as any thrifty farmer with good taste might hope to build or have built for himself. The principal should live in the home, keep it as a model home for the community, and cultivate the farm as a model farm, with garden, orchard, poultry yard, dairy, and whatever else that should be found on a well-conducted, well-tilled farm in that community. He should put himself into close contact with the agricultural college and agricultural experiment station of the state, and the departments of agriculture of state and nation, farm demonstration agents, and other similar agencies, and it should be made their duty to help in every way possible. These are not theoretical considerations, but actual results in many sections. Just such results as teachers imbued with the ideals of the new education hope to realize. They are new methods to be worked for. What can you do?



"SUCH A COTTAGE IS A NECESSARY PART OF THE CONSOLIDATED SCHOOL PLANT"

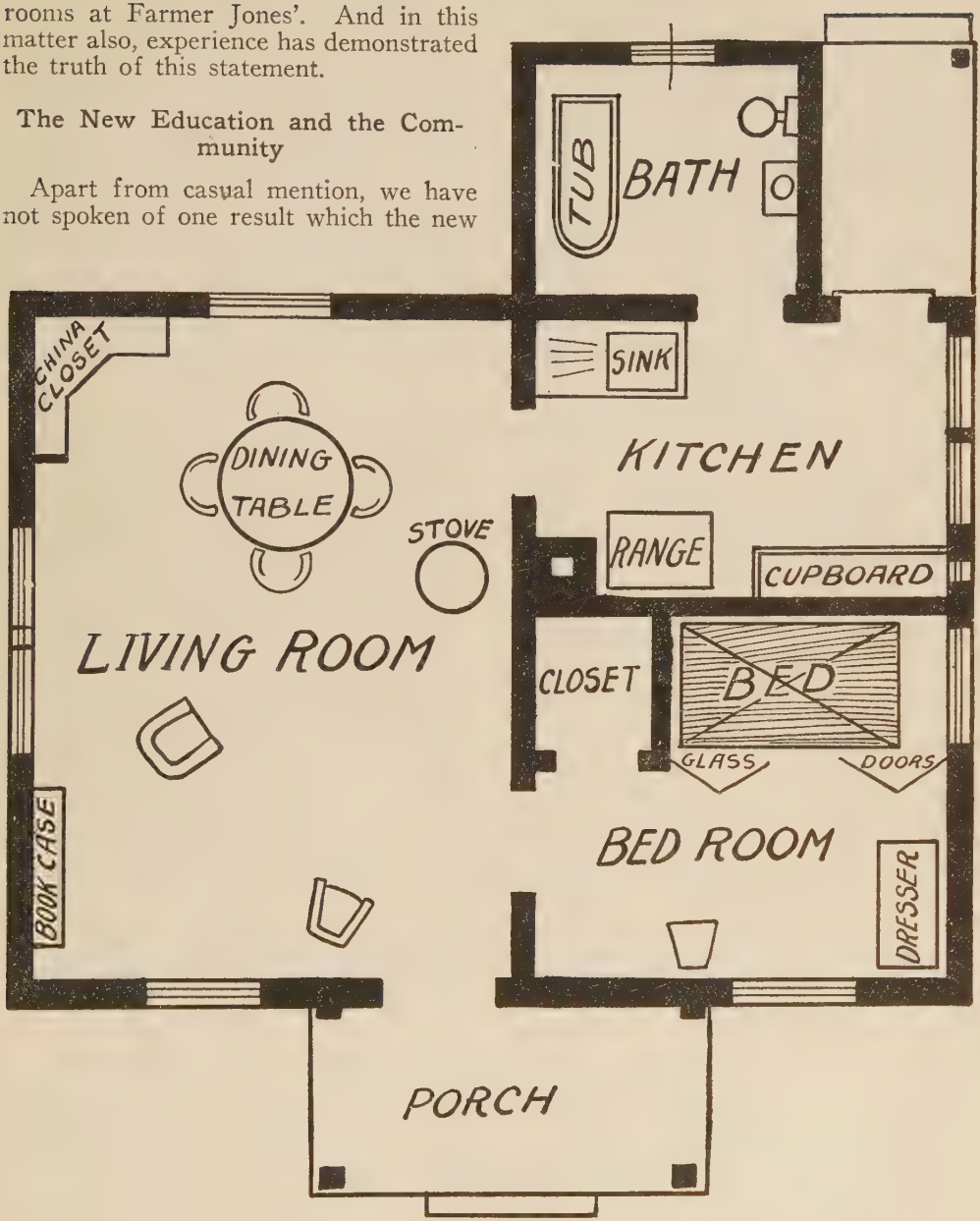
Teachers' Cottages and the Community

One of the best arguments for the teachers' cottage in connection with the rural school is that it encourages the community spirit. It is more than the teacher's home, it is the community home. Patrons feel free to call and discuss matters of interest in connection with their children in the school. They would not care to call if the teacher had

rooms at Farmer Jones'. And in this matter also, experience has demonstrated the truth of this statement.

The New Education and the Community

Apart from casual mention, we have not spoken of one result which the new



PLAN SUGGESTED BY THE BUREAU OF EDUCATION FOR A TEACHERS' COTTAGE

education has striven to advance in every way possible, realizing that it is education in the highest sense of the word, it concerns itself with the interests of the entire community. It is an effort to revive the community spirit of earlier days.

It is the earnest conviction of all stu-

dents that nothing will better advance the interests of rural life than for the communities to have a center where the people can come together in a spirit of comradeship and mutual good will to discuss questions in which they are all interested. It is believed that thus to meet in social contact is one remedy for the isolation of country life. The problem is to find some rallying point for community purpose.

Why Not Make the School Serve Such a Purpose?

The new education has a most practical solution of this problem in the new school building and its enlarged and beautified grounds. The school belongs to the whole people, and can easily be made to serve the social as well as the intellectual requirements of its constituency. Instead of being a benefit to a very small proportion of the population, a few hours each day, twenty days in the month for a little more than half the year, it should be of service to all the people of its community whenever it can serve their needs. With adequate buildings planned with such uses in mind, the young people will find at the school a place for their entertainments and parties; here the older ones of the neighborhood will come for their special programs on scientific agriculture and home economy; here all will assemble for neighborhood picnics, lectures, concerts, and whatever else goes to add to the intellectual and social life of the community.

Consolidated and Community Service

The consolidated school was no sooner established than it was discovered that it was most admirably calculated to answer this purpose. A district is generally too small a territory to consider in connection with community interests. The consolidated school serves from twenty to thirty square miles of territory and embraces a population ample for community organization purposes.

In fact, the rooms that are provided in all consolidated buildings lend themselves so readily to this purpose that they are a standing suggestion to the community to come together and utilize them for lectures and other entertainment. The logical places for picnics, agricultural exhibits, and stock or grain judging contests are the ample grounds surrounding the school. On the well equipped athletic fields can be held baseball contests and other forms of athletic sport.

An Object Lesson

The Bureau of Education has a most interesting account of improvement in a rural community far from the railroad in a hilly region, which only a few years ago was in a very backward state. At present, however, it has a splendid consolidated school and we read "Local social life, formerly of no community avail, now offers interests for the children, the young men and young women, and the older people of the community. The school started this by interesting the people, young and old, in games which were played on the school grounds. On Saturday afternoons, patrons and pupils meet on the grounds and enjoy themselves playing volley ball, tennis and other games." When people once begin to play together they soon begin to work together, and we learn that now "Literary societies meet in the school building, where many things of community importance are discussed."

It Always Works that Way

Similar results have been attained in so many instances that there is no longer a doubt the new education has won another triumph, taken another forward step in real, practical, home and school education in this use of the school building. Families meet and become acquainted, new friendships are formed, old grievances are removed, a spirit of interest in the common welfare is created. The new life thus breathed into the community is felt in school matters. Re-

ferring once more to the case just cited, we read:

"Before the establishment of the new school with its new relationship to the community, only the smaller children attended the school; the older ones sought work and entertainment elsewhere. At present the young men and women of the community attend the school. The farmers have learned to look to the institution for help in their agricultural problems. They find it more profitable to have their sons and daughters in school than at work on the farm, with no vision of a higher life to lure them on."

Summing Up

On reflection, we see that there is no essential difference between the consolidated school and the improved rural school that the new methods we have urged will secure for every district, except the advantage of grading. But observe that the emphasis is placed on teaching in accordance with rural life conditions, for rural needs. If we summarize the prime factors of the new education, we arrange them about as follows:

1. The up-building of the community. Education is no longer a matter of childhood only, but it embraces the whole of life.

2. The whole hearted, active co-operation of home and school, secured mainly by home projects and activities connected with the school in its capacity of a community center.

3. Education in both town and rural sections should be in accordance with the environment of the children. In rural sections the surroundings are those of country life. Homemaking and manual training are applicable to all schools. Agricultural and country life needs form the background of rural education.

"One hour of thoughtful reading each day will furnish food for meditation for all your leisure hours. Persist in this practice until it becomes a controlling habit. Read and study the lives of good men until you have discovered the secret of their goodness and greatness. Read and study the history of a nation until you appreciate the people, measure the leaders and are able to comprehend the reasons why it helped or hindered the world's progress. Read and study one of the classics until you make your own the idea of the author, see the pictures he paints, understand the character he portrays, and can think out to their legitimate conclusions the ideas expressed. Do not rest satisfied with understanding the words of the author, master the enthusiasm he inspires, and follow out the ideas your reading suggests. Study and respect the opinions of others, but in the end stand by your own conclusions."

CONCLUSION

We have been considering methods to advance the ideals of the new education, mainly, however, as they concern rural schools. We have pointed out that there has been a great awakening in very recent years to the importance of making rural schools responsive to twentieth century needs. Recent years have seen a great development in every business activity. Education concerns itself more and more with active every day life, and the home needs of the people. The new education emphasises this feature in all its methods and is anxious to extend them to rural schools.

Our Efforts

We have felt that teachers generally are sufficiently familiar with ordinary school methods. You have for years been studying how best to instruct your pupils in such topics as the division of one fraction by another. All these, important as they are, belong to the lower planes of school methods. What we desire is that from higher planes of thought you survey the entire field of rural education and become familiar with the methods, aims, and ideals of the new education as they relate to rural life.

These methods are such that they pass beyond the bounds of the school grounds, they circle out to every home in the community, they go with the children after the day's work in school, and unite in loving partnership with the activities of the home to the end that the pupil's life may, like the winding lane before the traveler, constantly suggest more alluring scenes beyond.

What Is Required

This necessitates increased work, perhaps sacrifice, and greater zeal on the part of the teacher. However in this as in other lines of effort, the work becomes easier as you proceed. There comes to you the enthusiasm of a great purpose. Your work becomes a labor of love. Every conscientious teacher can look forward to such a consummation. The fear of failure is gone like the mist of the morning. Your place is secure in the hearts of the community. You are conscious of the benison of good will, the unconscious offerings of grateful hearts. Love is ever reflected in love; and the teacher desirous of, and working for the good of the community receives good in return.

Every Citizen Concerned

You are a resident of the community. Your home is there. You can not separate yourself from community life. You may think you are not concerned in school affairs, if you have no children to attend. But the spirit of the community exerts a compelling power over your own life and character. Life becomes richer, more complete, and satisfying when the community spirit is shaped by lofty, far reaching views, but is dwarfed when the community spirit is narrowed to petty, selfish ideals. The natural inclination of your heart, not less than the compulsion of a natural law, urge you to assist the school in all earnest efforts for improvement since that, in turn, molds community spirit.

The Good of the Children

With what shall we compare the welfare of children? Every other interest of the community shrinks to insignificance when measured against the welfare of the children of the community. Flowers expand in fullness and beauty only when their environments are suited to their needs. Education now means to assist the child to unfold his natural powers. We must, then, make the educational surroundings of the child responsive to the requirements of child natur-

We lost sight of this fact in the severely practical school and grounds of former years. Beautiful flowers indeed bloom in sterile places, but they can not compare with the floral triumphs of the gardener's care. Something more than the intellect is to be cultivated. The child has an esthetic nature also. The building and grounds should be made to minister to his sense of beauty, fitness, and proportion. Nature has made play an essential part of his development: we must provide him with playgrounds, suitable apparatus, and help him in his plays. In all known ways his health must be safeguarded, for the sickly plant can not develop a beautiful flower.

But the new education never loses sight of the necessity of mental drill and discipline and the importance of the three R's. In fact the new era that is soon to dawn on the world is going to make such drill and discipline more important than ever. We have shown how to accomplish such a result from a different angle of teaching, by making the self-interest of the child lend added zest to their pursuit, and by re-directing the activities of the school. And finally we have considered the new school building as the community center. All this shows what active measure the new education is taking to safeguard the welfare of the children.

The Future

Every progressive teacher knows that great as has been the progress of recent years the end has not been reached. In education, as in everything, the ideal advances with progress in general. The consolidated building with its present ample grounds will not suffice for the needs of the near future. Branches of learning that effect life and happiness, home and school more intimately still will be introduced and attention will be given to every phase of child development. The educational methods of the future will as far surpass the advanced methods of the day, as they, in turn, surpass those of earlier years. Those familiar with the trend of events have not hesitated to depict the—

School of Tomorrow

Schools of the consolidated type will constantly increase in number, and the territory served by the school will increase in size as roads and methods of transportation become improved, until the unit of administration will be not less than an entire township of thirty-six square miles. We shall need a group of school buildings, among which the teacher's house will be prominent. These buildings will be placed as near the center of the township as possible, and for the more distant pupils daily conveyance in groups will be arranged. We shall need very ample grounds, many acres for school gardens, farms, and parks. Since our school in its aim includes everybody, old as well as young, it will be in session all the year round, for everyone will realize that education is a life work and further progress always possible and desirable. Every industry in the district will find place in the school work. Every kitchen, barn, and shed will be an object lesson for the school. The growing crops, the orchards, the forests, the streams, even the tools of the farm, will be a part of our equipment. The horizon will form the walls of our museum of natural history, the sky, its roof, and all the life within furnish material for our study.

Health the First Lesson

Our plans shall be for health, as the basis of all well-being and well-doing. We shall search out the local causes of ill health in the family and in the community, also in plant and animal life. We shall call to our aid experts from the chemical and agricultural colleges and universities, our schools of forestry and of veterinary medicine. They shall lay their conclusions before us and shall lecture and demonstrate and be in constant correspondence with us. We shall teach all that is necessary to know about sanitation of a home, we shall impress on all

the need of cleanliness within the home, of neatness, taste, and beauty about it. We shall show the value of ventilation, light, warmth and the best methods of securing them. We shall study the question of drainage, sewerage, the disposal of waste, the water supply, infection, its source and prevention. Our work on hygiene shall be very thorough, penetrative, and persistent. We shall teach the hygiene of the various members of the body, the hygiene of the eye, the teeth, the digestive system, the hygiene of sex, of marriage, of infancy, of age.

Food and Clothing

We shall plan model kitchens and model rural homes. We shall render the home and all its surroundings tasteful, comfortable, and healthful. Every girl and every boy shall be taught what to eat, how to eat, and how to cook. At least three times a day throughout his life, every one of us must eat, and the question of healthful and nutritious diet is one of the most important single questions in life. We shall study cloth, its methods of manufacture, tests of its quality. Every person shall be able to distinguish between the spurious and the genuine, and to calculate economy in clothing. Every girl shall be taught to cut, fit, and make with her own hands the ordinary clothing of the family.

Methods of Teaching

We shall seize the restless activities of the child body and mind, and, instead of repressing them, we shall stimulate those activities, as the natural forces of growth in action. We shall seek to learn the instincts of the child and reverently to follow and obey them as guides to his development.

We will harness the natural activities of the child to his natural aspirations, and guide and help in their realization. The child naturally wishes to do the things that adults do, and therefore the operations of adult life form the imitative plays of the child. The child lives in a dreamland full of glowing hopes of the future, and seeks anticipatively to live today the life of his manhood. So we will organize our children into a little community and teach them to do in a perfect way the things their fathers and mothers are doing in an imperfect way, in the home, in the shop, on the farm. We shall train the child for the life before him by methods which reach the perfection of their adaptation only when the pleasures of school work imperceptibly blend in the pleasures of home.

The children shall learn the names of trees, the leaves they bear, the peculiarities of their branching, and methods of growth, their value and use; the name also of all the wild birds, their songs and habits. Curiosity shall be aroused about the latent mysteries in waters, fields, and forests. Insect life not less than plant life shall disclose wondrous secrets to their eager eyes; thus the minds of the children shall be filled with interesting thoughts, and their eyes shall glow with intelligence.

The Art of Recreation

The art of recreation for young and old, for all pursuits, for all seasons, for both sexes, indoors and out, shall be taught. Recreation that is wholesome shall enter into the programme, not occasionally, but every day. The building and school grounds will be equipped as playgrounds and recreation centers calculated to attract not alone the young but the old as well. Ultimately, there will be professors of popular recreation. Their duty shall be to teach us ways of relief from strain and tedium of daily life. We shall have our weekly half holiday for community recreations in which all shall join.

We shall cultivate beauty not less than recreation. The sense of beauty in sight and sound is instinctive in mankind, ineradicable, and as fundamental as hunger. Deeper than intelligence, its basis is in our physical being, and every form of organized life expresses it. The sense of beauty in our rural children, as yet

almost uncultivated and undeveloped, is a promising field of joy and blessedness. The laws of beauty are indeed little known as yet, but scenes of beauty shall everywhere be studied. The instruction of the rural school as well as its example, will show the possibilities of beautifying the home and its surroundings. Pupils instructed in the principles of landscape gardening and the decoration of their home grounds will use the home place as a laboratory for carrying out the principles exemplified in the school.

Music in the Future School

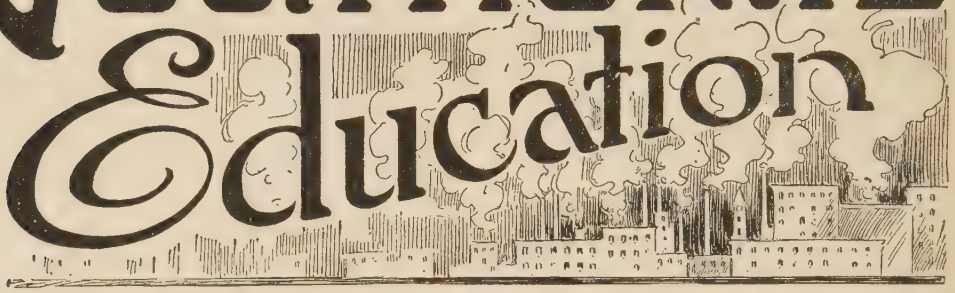
Beauty, music and art make the same appeal to our nature. Scenes of beauty shall be dwelt upon so that we may catch somewhat the secret of their charm. The art of drawing shall be offered to all, and much will be made of music. That will be a branch generally taught in rural schools. We are assured that any plan for a larger, better, and more satisfying country life must include music; music in the home, the school, and for community purposes. If we can get our boys and girls to sing and cultivate in them an appreciation for that which is truly beautiful, we shall have given an added charm to rural life. Accordingly, part of the equipment of the future school will be its musical instruments, its orchestra and various choruses.

Can This Be Realized?

To many, all this may seem as baseless as the fabric of a dream. But every great achievement was first the dream of some enthusiastic person. The ideals of today become the actualities of tomorrow. The only question is whether the school and its methods as here outlined, will better advance the education of children. Will it tend to make life for them more full and complete? Will field and forest and stream have a new message for them? Will the stars that shine at night, the mysterious forces of nature ceaselessly playing around them, lift their thoughts to higher things? And when the years of maturity come to them, will they go forth to their duties inspired with a desire to be of real service to mankind? If such be the case, then will this dream be realized; and, fellow teachers, it is your duty and privilege by faithful work and honest endeavor to help realize this school of tomorrow.

"Talent is no match for tact. Tact will manipulate one talent so as to get more out of it in a lifetime than ten talents will accomplish without tact. Talent is power, tact is skill. Talent knows what to do, tact knows how to do it. Talent theorises, tact performs. Philosophers discuss, practical men act. Tact cuts the knots it cannot untie. Tact is the getting-on quality that wins the prizes of life. Tact, like Caesar, when it stumbles, stumbles forward and rises with sand in its hand—a sign of conquest. The question this practical age is asking is not what degree do you have, but "Can you make good?" It is the one who knows how that wins. He who would push to the front in this competitive age must be in touch with the great bustling, busy world. He must keep his mind parallel with the nature of things."

Vocational Education



The great development in rural school methods; the wide spread interest in rural education showing itself in state and national legislation; the general feeling among rural teachers that new plans, efforts, and energies are demanded to meet the needs of the present—constitute but one phase of an educational activity that covers the entire country. Advance in such matters can not be confined to one class of schools, or to one section. The whole country responds to the influence of thought from higher planes, and earnest workers in towns and cities realize that they, too, are confronted by new problems and must devise new methods for meeting them. It is not simply new methods but new ideals, a clearer appreciation of the problems confronting the school, a growing sense of the importance of the teacher's work that is effecting results in town and city schools.

The Teacher Can Not Stand Still

It is dawning on the consciousness of earnest teachers everywhere that their profession is a living, growing one, that if they are not advancing in their work, not keeping acquainted with the results of the work of leading educators, they are retrograding. They can not make a success of their school work by simply keeping in mind ideals of the past. Enthusiasm dies down unless fed by the inspiration of new ideas; when enthusiasm has gone, interest has gone, and no effective work can be done. This is why it is necessary for teachers to keep fully informed on educational ideals and methods, which means far more than what was formerly understood by that term.

A Present Necessity

In the history of our country there never has been greater need for efficient education. The most momentous period of history is approaching, it is at hand. The shock of armed conflict will soon pass, but the struggle will continue on other planes of activity. Only time itself can disclose what the future has in store. The days of autocratic power are going and in the coming age the genuine worth and dignity of man will be what counts. This will necessitate more efficient education.

It must be education that goes to the training of the entire man, and all men, not a few favored ones; enabling all to live a life worth while. Every one in our land is entitled to an education that answers to real life needs, one that measures way beyond education ample in grandfather's day. In education as in every field of activity methods sufficient

for former generations will not do now, they are outgrown. The recent great advance in agriculture and in business has been won by disregarding old methods. Progress in education will result by following the same course. We must wake up. This is not the days of the stage coach, but of the limited express.

The Coming Struggle

If we as a nation are to hold our own in the struggle for leadership for which the nations of the world are preparing, we must increase the efficiency of our boys and girls by an education that works everyday and in all places. Live workers are urging us to abandon many cherished ideals that directed the education of past generations. Education must be shaped to the needs of the twentieth century, not left to follow methods suitable when automobiles and telephones were unknown.

The Vocational Idea

We have been moving fast since 1900, a new leaven has been at work in school matters and we have a new aim in education. It is not new in the sense that it has been heretofore unknown, but in the discovery of its great importance. It is an educational by-product whose value has just been realized. It may be called the vocational idea. It is no longer simply a phase of education exciting a languid interest here and there, to which a few schools hither and yon pay some attention, but it has suddenly forged to the front as a subject which schools everywhere must consider,—one that is compelling a re-shaping of school programs,—a plane of thought from which the whole educational field must be reviewed, and every live teacher must acquaint himself with the same. He must shape, as far as possible, his school work in conformity to this new aim if he wishes to be known as a progressive teacher. Make no mistake in this matter. If teaching in town or city you will have to grasp the fundamental ideas involved in vocational education and do what you can in your limited sphere, or else wake up to the unpleasant fact that you are not recognized as an up-to-date teacher. It is worth your effort to escape that fate.

What Is Vocational Education?

The official definition of vocational education is any form of education, whether given in a school or elsewhere, the purpose of which is to fit an individual to pursue effectively a recognized, profitable employment, whether pursued for wages or otherwise. At first, one does not see why all education is not vocational. It is the purpose in mind, that makes the difference. In order to grasp this definition and thus intelligently comprehend the educational trend of the day, we must pay attention to other points. Vocational education, which now looms so large, is such a new factor that the terms used to describe it are not generally understood. We urge a careful consideration of the same, you can not afford to remain ignorant of them.

Difference Between General and Vocational Education

Nearly all the education of the past, especially in this country, was the kind now known as general education. The aim in this type of education is to develop general intelligence; it is mental drill and discipline obtained from a study of common branches, such as reading, writing, mathematics, etc., without reference to any specified calling. This type of education is also known as liberal education. Not long ago such an education was deemed sufficient, and too many teachers think it is the one sufficient aim in education today. Such teachers have in mind ideals of the past when if one only had a liberal education, one was thought to be prepared for life work. No one doubts the value of such an education, but it is now regarded as constituting only the foundation on which to build later our present day structure of vocational education.

Wherein the Old Education Lacked

The defect in this old type of education is that it contents itself with forming the machine but leaves the pupils unable to run it. They are trained in theory but not in practice, and so can not apply themselves. In no sense is vocational education in opposition to the ideals of the old education, but its special field is to prepare for useful industry. Its aim is not to curtail general education, but to supplement it. The new type of education means much more than the old. The old type is the beautifully laid out grounds; the new type is the same with the efficient factory built thereon, the product of which is to be a more productive life. On a foundation of general education, the new education procedes to train the hand to skill in some useful calling, but between these two divisions of education there has arisen in practice still a third group of studies known as:

Practical Arts or Prevocational Education

Practical arts education includes such branches as manual training: instruction on agriculture given in rural schools generally, including agricultural home projects: and home making arts, such as instruction in sewing in rural and town schools, and cooking. These branches are often confounded with vocational education, but they fall short of a definite goal. The instruction given is general in its nature, and is not assumed to be given for the express purpose of making the recipient efficient in any recognized calling. But they form an excellent stepping stone between the academic branches (represented by the three R's) and the severely practical branches of true vocational education. They furnish a means of enlarging general intelligence, and developing a sound appreciation of economic products. In effect these branches bridge the gap between the old and the new types of education. They are of help to both but possess special features of their own.

As an Aid to Other Branches

In considering rural school methods, we found such branches of great value in vitalizing the common school branches. To illustrate, school home garden projects are not vocational since the idea is not to make expert gardeners (though that may result), but they serve to vitalize, invest with interest various ordinary school branches, such as nature study. They are called prevocational, also, because they help a student to "find himself," that is if he has any taste or aptitude for any specified calling such branches will develop it. If a boy is a natural born mechanic, a course in manual training will appeal to him. Manual training is good as a part of liberal education but it is only a stepping stone to real vocational education. The same is true of household arts in our schools, and most of agriculture in rural schools.

Prevocational Studies Tend to Hold Students in School

But prevocational studies have a positive value of their own. Thus the new type of education grows in importance. Education is so important that the state makes attendance compulsory up to certain ages. But an alarmingly large number of pupils leave school as soon as they are free from the law. Something is wrong. We must compel the schools to furnish that type of education that will attract and hold pupils until the training they receive is something worth while.

The United States Bureau of Education thoroughly investigated this matter and shows that only about a third of all the pupils that enter elementary schools graduate from the eighth grade, less than ten per cent graduate from the high school. That fact is graphically stated as follows: If the school children in this country under eighteen years of age were placed in a straight line, allowing one foot of space for each child, the line would stretch from the upper end of Maine across the continent to the lower end of California. If those leaving

school at or about the age of fourteen—nearly all of them to become breadwinners—were taken from the line, only that portion extending across the state of California would remain.

Do You Realize What This Means?

Thousands of our boys and girls yearly drop out of school and go to work. They do this with no definite aim in view taking the nearest available job without regard to fitness either way. Notice what this means. These boys and girls are not prepared for any pursuit. They can not effectively use what little culture they have received. A rude awakening is apt to come before long. There is no place in the modern world for the unskilled; no one can hope for any genuine success who fails to prepare in some line, good intentions go for nothing, and industry is thrown away if one can not put skill into his work.

The man of medium skill depends upon fortunate conditions for success. He can not command it, nor can he keep it. The untrained man invites all the tragic possibilities of failure. There is no misery of mind greater than that which comes to the honest man who, too late, finds himself condemned, by reason of unfitness or mistaken choice, to life-long drudgery at a job he hates. We all know cases of such unfitness, of wasted talent, of opportunities missed through ignorance. The new type of education is designed to help solve just such problems as these. The victims of such a mistaken policy are not the only sufferers.

We Can Not Stand This Loss

In the stress of the new age that is upon us, when preparedness of every kind is a national necessity. We can not stand this economic loss. As a nation we have been running our educational machinery at about fifty per cent efficiency. The great body of our boys and girls have not been prepared to do their best. They do not know how to make an effective use of their faculties. Right here is where the special value of prevocational branches is shown. In addition to their other excellent features, such branches tend to hold children in school. Children now see some connection between their school work and their life work. This gives the uninteresting school branches a new meaning. They are now worth while.

Boys and girls are not different from grown-ups. If our purpose in life is such that we think it necessary to master some branch of learning, we at once set about it. When boys and girls are about fourteen years of age, we must either give them some reason for study or they will not put their heart into it. They lose interest in their studies and leave school. These new studies (especially when the course is so elastic that the pupils have a liberty of choice) furnish them a motive. Home projects in rural schools are prevocational in nature, and we have seen what a great help they are in rousing interest in school work.

The New Education in Towns and Cities

Enough has now been stated to make it clear that rural teachers are not the only ones that must enlarge their vision. Before all conscientous teachers, whether in the country or in town, new problems are constantly presenting themselves. They are forced to consider education from another view point, from another plane of observation. In earlier years all efforts were to achieve one purpose only. Advance was in one direction—how best to teach reading, spelling and arithmetic in the lower grades; mathematics, languages and English in the more advanced grades. Accessory studies of various kinds were indeed considered, such as nature study and story telling, but the purpose was simply to more effectively teach the cultural branches. As the motive was still lacking, such accessory branches have not met the success hoped for when first introduced.

The Wider Sweep of Education

Notice the difference between the old and new education. In former days education was the one-story structure, pleasant to contemplate, but taking care of only a small part of our population. Now, education is a several-storied factory building whose product is efficient preparation for the masses of our children. They are given not only the cultural drill of the older branches, but it is enforced by prevocational work, that gives a new meaning to the older teaching; and by furnishing a motive for the same leads the pupil on the further drill and points the way to some definite form of vocational schooling that shall fit him for life, not dismiss him at a tender age, unprepared for the struggle that awaits him. The teacher who thoroughly grasps this distinction will do what he can to further the new education.

History of the Vocational Movement

That this movement is something that all live teachers must investigate is shown by the great interest aroused in, and rapid spread of the vocational idea. In 1905, Massachusetts appointed a commission to investigate and report on the needs for industrial education in that state. The term, industrial education, now means that department of vocational education that has to do with gainful or productive trades, as distinct from agriculture, home-making or the professions. The report of this commission brought about drastic legislation in favor of such education, and necessary bills were enacted. Thus Massachusetts took the lead in this new education. The next year Wisconsin adopted plans for vocational education. Since then seven other states have passed somewhat similar laws. Such education is rendered possible in sixteen other states. We are here talking about strictly vocational schools.

It thus seems that since 1905 half the states of the union either require or permit vocational education. In the meantime, the aid of the National Government has been enlisted. The recently enacted Smith-Hughes bill extends most generous aid to states that meet very moderate requirements.

Not a Passing Fad

Such has been the progress in a little over a decade. What we have defined as prevocational studies has had a still wider adoption. In nearly every state these subjects are recognized as a legitimate part of public education. In by far the greater number of states work in manual training and household arts is carried on in the schools. In the shape of home projects, instruction in these branches becomes a very important part of the school work. It is thus evident that this type of education had had a definite and vigorous growth. The time is not distant when all progressive teachers will have to consider this matter, simply because the homes of our land are going to demand from the school such forms of education as will fit their boys and girls to take their right place in life.

Equal Chances to All

Reflection shows that vocational education means equal chances to all in accordance with the spirit of our institutions. The older type of education really fitted for life work only about ten per cent of our youths, or those that went on through high school and college to the ranks of some profession. It helps such because doctors, lawyers and ministers need general preparation. We have at last realized that something must be done for the other ninety per cent. As a nation, we begin to realize the importance of an education in common things for common people, as well as education for the few who enter the professions. The greatness of a nation is not the outgrowth of a few men of genius, but the work of the common people. Our boast is equal opportunity to all. Our schools should look to the interests of all. The

boy looking for work in the office, the shop, or the farm has the right to a schooling that will make him an efficient clerk, mechanic, or farmer. The old type of education has not done this. It looked out for the interests of the ten per cent.

The Ninety Per Cent

It is this ninety per cent of our boys and girls that the new type of education is seeking to help. It endeavors to hold them in school at that period of life when the capacity to learn should be the greatest, but if they then leave school the probabilities are that they will enter employment which, while it may pay them good wages for boys, yet the practical effect is to doom them to the ranks of the poorly paid, because unskilled, employments for life. The new education has in mind giving the ninety per cent an education such as will fit them to do effective work in some calling. Surely here is purpose enough to enthuse an earnest teacher. If practical methods are at hand to effect results of such greatly increased value, there can be nothing more important for the teachers to consider. It is no wonder our country is turning more and more to vocational education. It is no wonder that progressive teachers are studying into it.

A National Necessity

But the whole nation is interested in this work. Here is something that increases the economic welfare of our nation. Like other duties it can be neglected only at our peril. In the coming period of economic storm and stress the victory is going to rest with that nation able to put the greatest amount of brain and skill into its products; and victory in the conflict is going to mean as much to the happiness and prosperity of the people of the nation as those now being won by dreadnoughts and charging troops. We have been compelling pupils to attend school; we must now compel schools to give pupils the most effective form of education.

Europe Shows Us How

The great nations of Europe, have known these facts for years. England, France and Germany have been looking after the education of the ninety per cent of their boys and girls, as well as the ten per cent that has satisfied us in America. The amazing advance of Germany during the years of peace preceding the great world conflict was the wonder of the world. It was largely due to careful attention given to the practical education of the ninety per cent of her pupils. We can not hope to advance as we should—we shall relatively retrograde—unless we take steps to stop the economic loss incurred in allowing ninety per cent of our boys to enter on the years of maturity without an education fitting them for their work. It is a dangerous thing to educate a boy with no reference to a vocation. The state is taking a risk in turning back upon itself the merely bookishly educated type that can not employ its powers in some useful education.

A Condition, Not a Theory Confronting Us

It was a boast of Germany before the evil days of war that the time was at hand when there would be no such a thing as an untrained workman in her empire. We have twenty million workmen in the United States, only a small per cent of them having an opportunity to secure as suitable an education for their calling as Germany provided for her workmen. This fact is disturbing to our national egotism, but it is true just the same. What shall we do about it? We may expect the contrast to become more glaring in the future unless we, as a nation, make haste to adopt the essential features of vocational education. A nation should be run on business principles. What business can possibly succeed on a ten per cent efficiency?

New Type of Schools Required

In order to give completeness to this review we should explain the new kind

of schools which have originated in response to the demand for vocational education. In the strictly vocational schools the pupils are taught the actual operations required in any particular calling, as well as the theory involved. For instance, at Beverly, Massachusetts, is a school in connection with the United Shoe Machinery Company. One week the boys receive theoretical or related instruction under their teacher in school. The next week, their teacher is their foreman in the shop, giving them practical instructions in the work.

Extension Schools

Such vocational schools may be either day or evening schools, provided the main purpose is to give the pupils practical instruction in some calling. But the aim sought by the instruction may be twofold. Suppose the boy is already working at some trade, but wishes to fit himself better for his work, so that becoming more proficient, he can command better wages, and the instructions are related to that calling. Such schools are vocational extension schools.

Vocational Preparatory Schools

Or it may be the boy though working in one trade, desires to fit himself for work in another trade, and the instruction given is for the purpose of preparing for such a calling. Such schools are vocational preparatory schools. In still another type of schools the effort is to get hold of boys who have gone out to work and induce them to put in some of their time in schools—such schools are known as part time or continuation schools. It is evident that in all schools of this kind the instruction given may largely be for the purpose of general improvement.

Main Divisions of Vocational Schools

Once more these various types of vocational schools can be divided into a few large divisions, or groups. We may have professional, commercial, agricultural, industrial and home-making vocational schools. These divisions do not need to be defined. We must further remember that each of these large divisions is attended with prevocational branches calculated to connect branches taught with the general, or cultural branches, given in all rural and town schools. To illustrate, the agricultural college is the agricultural vocational school; but all agricultural home projects are prevocational, connecting the college with the rural schools generally. According to the United States Bureau of Education there are hundreds of schools of the above defined type in our country the majority of which have been established within the last ten years. This fact alone shows the need of informing oneself on these subjects. The door of some great opportunity may open before one only to close if one is not prepared to take advantage of it.

How Germany Prepared

There were thousands of various schools necessary to serve the purpose of vocational education, divided as we have defined them, in Germany. There was not a town in all Germany where some school of this type was not found. This shows how very far Germany was from believing the old type of school is sufficient for the present day needs. No wonder German workmen, salesmen, tradesmen have advanced that country in national well-being faster than any other country in the world. There is a lesson for the whole world, for America, and for every individual teacher in America, in the example of Germany.

What Shall the Teacher Do?

The larger the town the more necessity for the teacher to make a study of these methods. But there is no town so small that something can not be done in this direction. Prevocational branches can be introduced. Agriculture, manual training and home-making arts, all in the shape of various home projects can be taken up. Commercial vocational branches, such as typewriting, stenog-

raphy, and bookkeeping can be introduced in almost any town. The teacher can always shift the emphasis from the traditional teaching to modern teaching, such as business arithmetic, commercial geography, business English with emphasis on present needs.

The Help of Business Men

In larger towns, it will be necessary to enlist business men. A survey will have to be made to determine the kind of vocational schools to be introduced. It will pay however to do what you can in this way. To sum it up, vocational education is coming. It can not be delayed. A pronounced success abroad, there is every reason to think it will be equally successful in this country.

In the new age on which we are entering, there can be no greater measure of national preparedness than industrial training for our youths. In every way it will make the schools more efficient, it will greatly increase the interest, and it opens the door of opportunity to the ninety per cent of our youths that have not been able to take advantage of the old type of education.

Vocational Guidance

We are just adopting as our own an extension of school activity that Germany has been using for years, and which has contributed a great deal to the industrial development of that country. It marks the entry of the new education into a field of work that promises wonderful results. It rounds out and completes the new scheme of education. It is known as vocational guidance. In brief, the new education is taking on as part of its work the guidance of pupils in the selection of some line of work for which their abilities fit them.

The Widening Field

Mark the widening field of school activity. The older type of education contented itself with giving to its pupils mental drill, and such an amount and variety of useful information that they were in theory better fitted to engage in any of the many acceptable lines of activity. In practice, we have seen that it was of direct, practical aid to about ten per cent of the pupils only.

The new education seeks to do all this, but, in addition, reaches out a helping hand to the remaining ninety per cent of its pupils and by means of vocational education fits them for an active career. Still further, it takes up vocational guidance as an honest attempt to assist the pupil to make a suitable choice of a vocation for his life work. It imposes on teachers the task of deciding from what they learn of the pupil's mental fitness, the special line of activity which in view of all circumstances is probably the best for him to undertake.

The General Law of Development

Education in its growth is subject to the general law of development. Progress is from the simple to the complex. This evolution has been so rapid of recent years, it has widened out to give expression to so many new ideals that methods for making this new education effective in all branches are far from being generally agreed upon. But the wonderful possibilities of the new education are now fairly before us. In considering the problem of the rural schools we were surprised at the effectiveness of new methods, we seemed to be on the verge of a new era.

It is just the same in town and city schools. Here, too, we have discovered in vocational education, such a great enlargement of vision that we are, in effect, considering a new education, and it is one that appeals to the best in every teacher. It summons them to put forth their best endeavors. It demands of them new ideals, new methods, an increased willingness to serve. But it promises rewards for which true teachers labor.

How Vocational Guidance is Given

Naturally there are no positive rules for determining what is the best vocation

for any individual pupil to take up. There are however certain methods of rendering effective assistance. There is first, attempts to convey information relative to the economic possibilities of different vocations. This is given by means of reading description of the proposed vocation, and natural qualities which successful operators must possess. This information is obtained from books, lectures, catalogues, etc. Then the teachers make a study of young people under their charge, their physical and intellectual make-up with a view of advising them, as to lines of employment which they can effectively enter.

We have spoken of provocational training as enabling the pupils to find themselves. If a boy discovers that manual training is utterly distasteful to him, he probably would not make a success in any mechanical line. If draughting is full of interest for him, some engineering line would seem to be indicated. There is needed conference between pupils and teachers, in which parents participate.

The Example of Boston

While Boston is a large city, still there are elements in the methods there employed which can be adopted in a modified form in any locality, and the results in Boston are so satisfactory and promise such a vast amount of good, and furnish such an admirable example of co-operation of home and school, that we must examine them with some care. Any enthusiastic, energetic teacher can gather from this example much to help him in his work, wherever he may be located.

Method of Work

A vocation bureau was organized and entered into a definite agreement with the Boston school committee to establish vocational guidance in the schools of the city. A committee of six masters was appointed to promote co-operation. A system of vocational-record cards was established for elementary and high schools. The cards show the parents' plan for the pupil, the especial ability of the pupil in some line, his physique, finally his own plan of life, whether he aims to enter a trade, profession, or business. Teaching thus becomes more personal, and consequently more helpful from the vocational standpoint to the individual boy or girl.

Along with this card system, meetings of teachers are held for the study of vocational conditions and questions, and addresses are given by people of special fitness before schools and parents' associations. One of the principal provisions in the arrangements between the school committee and the vocation bureau is for a group of teachers, known as vocational counselors, to be appointed by their respective principals to represent every school in Boston and to give time and thought to vocational guidance. These teachers personally study the home, street, and other influences which steady or unsettle the children when the compulsory age limit is reached; they are trying to discover what assistance a school can give to parent and child perplexed with the problems of a life career.

Results

There is plentiful testimony showing that fathers and mothers now turn to the Boston schools as never before for advice and help concerning their children's future. Questions as to what high schools or vocational schools and what courses to choose are continually coming before the counselors. The abilities, the interests, faults, and promising tendencies in the children are topics of grave discussion between parent and teacher or principal, the viewpoint being not only that of present school requirements but also that of the probable careers of the children. In the classrooms the occupational talks are repeated in order to make clear the efficiency requirements of the practical world outside. School programs, and even commencement-day programs, begin to show how schools are facing the challenging world which is soon to claim the productive years of these children.

This awakened practical interest of the schools in the life work of the children can not stop short of comprehensive supervision and protection of the after-school careers of boys and girls. Already teachers, on their own initiative and with an expenditure of much time and energy, go into the homes of their pupils, and seek to get first-hand knowledge of the industrial environments. If our schools are to have any guiding relation to life, and all educational reform clamors for this relation, teachers must be given every incentive to touch in such personal ways the realities of the life which their pupils will live.

What All Progressive Teachers Should Plan For

In smaller towns, the work can not be carried to such a stage of development as in Boston and other large cities. But the spirit that actuates the teachers of Boston can effectually influence teachers generally. It is the spirit of service. It is the desire to help the boys and girls attending their school to practical conclusions concerning their life work. In addition to giving them the drill and discipline of the regular academic branches, represented by the three R's—they are to study their disposition, give advice as to vocational careers, and since prevocational branches and home projects can be put in effect in practically all towns, the means are at hand for all teachers to render effective service in this connection. Vocational guidance does not wait for the closing days of high school work, but begins with the advanced grades. The boy's aptitudes for any special vocation are even then in evidence and it is the duty of the school to have such tendencies in mind. This is vocational guidance, the final stage of vocational education which, in turn, is the final development of the new education as far as it is concerned with the content of education.

The Final Result

This shows the spirit of service that is exerting an increasing influence on the activities of the school. Herein is seen the final stage of Home and School Co-operation work. It should be noticed how the new education has been steadily advancing this work. The older type of education made but little effort to enlist the active aid of the home in its work. The new education has in every way sought to effect such a result. In vocational guidance this result is secured in a very complete manner. It comes as the end of years of evolutionary advance.

"Education enables its possessor to live more, to be worth more, and to serve more than he could possibly be able to do without it. Education will give its possessor greater assurance of success in any useful calling upon which he may enter; above and beyond all this, it will give him power of development that will make him worthy of his origin, his present relations and his future destiny."

THE GARY SYSTEM

When we consider the great advance in school methods in both rural and city schools that is urging the conscientious teachers to greater efforts it would seem that at last, the model school, the goal of evolution in school matters, is in sight; and that further advance is to consist in improving present methods, and reducing to system the present confused field of vocational education and perfecting the same.

Change the Universal Order

Changelessness is an attribute of death not of life. A language that does not change is dead. In agriculture, in commerce, and in business the instant we rest satisfied with present achievements that instant we begin to retrograde; it is the same in school methods. There is always a height beyond for us to surmount. Recently, a great forward step has been taken, not by enriching the curriculum, not by teaching new branches, not anything particularly new or startling, but a new method of administration. Those given to reflection and thought have been struck with the fact that in business of all kinds recent advance has been won by calmly disregarding traditional methods, and a fearless trying out of new plans, often in complete disregard of traditional methods of procedure. The same is true of agriculture, and it has now been shown that it holds good in school methods. This introduced us to the Gary plan of running schools.

What Is the Gary Plan?

The essence of the new plan is simply this. Let us consider the school of a town as a factory whose product is to prepare boys and girls for efficient life. Let us apply to the running of this educational factory, modern efficient methods. Let us act on the assumption that there is nothing sacred about traditional methods of school management, that we are at liberty to revise the same or dispense with them, introducing new methods in their place, if we thereby increase the efficiency of the factory. In this instance, observe we are not considering the contents of education; but the efficient running of the factory. The contents, or in other words the product of the factory, remains, as we have discussed it, a complex of cultural and prevocational branches, fitting the pupils for life work. As stated that remains the same.

The Problem

The problem we are now to consider is how to increase the efficient management of the factory. It is evident that the larger the town or city, consequently the larger and more expensive the factory, the greater need of such revision of methods. But the spirit of this innovation is applicable to all town schools. Are you principal of such a school? Then wake to the fact that you are simply manager of an educational factory; and realize that it is not enough to follow methods of olden days, but it is your business to apply the most modern, efficient methods to the running of your factory, according to the special needs of your town.

In agriculture he who can make two blades of grass grow where but one grew before is a public benefactor. The manager who can double the output of his factory and not materially increase the expense is applauded for the work. The educator, then, who can double the efficiency of his school, enabling it to serve twice as many pupils is entitled to far more than the thanks of his community. It is quite generally recognized by educators of today that Prof. William Wirt of Gary, Indiana, has accomplished such a result. There is not a teacher in

this country, that can not gain inspiration for work by considering the results achieved by a man of enough originality and bravery to cut the Gordian knot of traditional methods and boldly enter on untrodden paths in school management.

A Fact, Not a Theory

Says the Journal of Education: "There is no chance to question the fact that in Gary every school house is used by two distinct schools every day without robbing either school of any place it wants at any time it wants it. Neither school would use any part of the school plant any more, or any more advantageously, if the other school was not using it whenever it wanted it and as it wanted it.

"It makes no difference what you think about it, you cannot change the fact. You may say and think that it is unwise to have a schoolhouse do double duty, that it is not well to have a schoolhouse owerworked, that it violates divinely ordained educational traditions as to the amount of use that a schoolhouse should serve, but the fact remains."

What This Means

Do you notice what this means? Gary has shown how to double the efficiency of the educational factory. It is true that in many towns the school population is so small that present facilities are ample for present needs, but in most of our large cities there is necessity of increasing the efficiency of the present plant. There is always this further thought: if in one respect only such striking improvements can be effected, it is certainly wise to venture forth in untried fields wherever you are engaged. It pays to be a leader. See what you can do.

And in New York

Gary is one of our smaller cities. It might be thought that however excellent the results in Gary, it would not be effective in other cities especially in large ones. But as Prof. Sneddon points out there seems to be no reason why the essential features of the Gary system should not work in any place; but notice, it is the essential features, not a slavish imitation.

However, it is already a demonstrated success in New York City. Here was the problem that confronted New York. It was necessary to provide greatly increased school facilities to accomodate the swelling multitude of school children. According to official reports this would require the expenditure of over forty million dollars. Before venturing on this great increase in the school plant, it was deemed wise to try the Gary plan.

Relief from Gary

Accordingly Prof. Wirt was invited to demonstrate his method in one school. This succeeded so well that twelve more were soon fitted to be used on the Gary plan. Then it was extended to fifty more schools. These facts bear eloquent testimony to the effectiveness of the Gary method of school management. But the political difficulties encountered by the Gary schools in New York also show how difficult it is to transform an established institution like the schools.

It is of course evident that in order to accommodate twice the number of pupils for which the building was planned, radical changes must be made in the management. It will be found in the sequel that these changes are attended by other and very weighty results affecting the character of the training given. In fact, doubling the capacity of the school building is only a fraction of the total benefits made possible by this system. In order to make effective these changes the building must possess all the modern features of the very best city schools. There must be ample playgrounds, fully equipped, there must be an auditorium, research laboratories, rooms for manual training, domestic science as well as recitation rooms. Now, many schools possess all these facilities and yet fall far short of the Gary system. So we must seek further for the real secret.

Two in One

Like all great inventions it is very simple when you understand it. Let us simply divide the pupils into two great divisions; two schools in short. Let us send the pupils of one school to the recitation rooms for the regular branches, the common school branches, history, geography, arithmetic, language, etc. During that period, we will send the pupils of the second group to the other parts of the school plant, some to manual arts, some to science laboratories, some to the auditorium, and others to the playground. Play, remember, is one of the regular pursuits. At the conclusion of the first period, let us simply reverse this work; sending the first school to the various special activities, while the second school is being accommodated in the various recitation rooms.

All Departments Running

By this means the playground is in use all day long, not simply for a little time at recess and noon, but all day. And all day means more than the usual six hours a day; the same is true of the recitation rooms and the rooms devoted to special activities. Half the day is devoted to regular branches and half to special and the two schools follow each other in reverse order.

From Eight A. M. to Five P. M.

One of the Gary aims is to run their school just as factories generally are run, eight hours a day. Teachers are required to be on duty at eight o'clock in the morning to assist pupils who come for work or play. Those that teach the common school branches are at liberty to go at four o'clock in the afternoon. Some teachers in the lines of special activity are required to remain until five. The purpose is to utilize the pupils' leisure time for wholesome recreation or supplementary work. The desire is to make school life so attractive that the pupil will prefer school to spending his time in the amusements of the street and alley.

And Saturdays, Too

And why not Saturdays, too? Why turn the children out to play in the streets one day in the week? Why have a splendidly equipped factory idle one day? So the school is kept open on Saturday from nine A. M. to five P. M. Teachers are paid extra for this time. Pupils attend or not as they please. Those who attend can put in their time much as they please. They can receive a sort of special instruction in the regular branches, put in extra time in work rooms, or auditoriums, or put in the day at play.

Evenings Also

All of the schools are also opened several evenings a week, from seven to nine thirty P. M. The evening work is in the nature of a continuation school, and social and recreational center activities, such as are now found in most large cities. Teachers in the day school have charge of most of the regular instructions. Instruction is also given in gymnasium work, swimming pool work, foot ball, basket ball, etc. This work is largely in the hands of more advanced pupils.

Finally, All the Year

They do not believe in any special vacation period in Gary. The year is divided into four terms, but the pupils can do as they please about attending one of these terms. And each pupil selects his own vacation time. If he should be sick for some time, such absence will be counted as part of his vacation time and he can thus get his full year's schooling, just as if he had not been sick at all. It is evident that this new plan is working the school factory pretty much to the limit, but after all it is simply the application of efficiency methods to education.

Vocational Education at Gary

Of course the usual high school prevocational branches are taught in Gary, in the manual training, domestic science and laboratories. They do not have any special vocational schools or departments

as we have defined them on preceding pages, but vocational education has not been lost sight of, and a most practical solution has been discovered. In short the administrative department of the school system is made to serve this purpose.

How It Is Done

In brief, the plan consists in having a number of regular workmen, selected on account of their upright character, intelligence, and skill, employed the year round in equipping and repairing the school plants of the city, instead of employing a large number of such workmen to put things in shape during vacations. These men are all capable of giving pupils instruction and the pupils work with them, in much the same way as the old-time apprentices. There are carpenters, cabinet-makers, painters, plumbers, sheet-metal workers, engineers, printers, electricians, machinists, foundrymen, etc., sufficient to meet the needs of the schools. Books cases, cabinets, tables, desks, benches, etc., are made, and these require staining and finishing. Some of the buildings or parts of buildings are painted, inside and out, and there is always varnishing to do. The interior finish of buildings and the desks and furniture have to be done over, from time to time, and so on. The engineer of the heating, lighting and ventilation plant gives lessons in firing, engineering and ventilation.

The electrician must care for many motors, lights, bells, clocks, etc., and there are opportunities for teaching winding, motor construction, etc. The printing plant offers opportunities for both boys and girls in printing, making note books, repairing and rebinding books, etc., and cuts for illustration, involving photography and photoengraving, must be made. Plumbing must be installed and kept in repair, and numerous parts of the school equipment call for the sheet-metal worker. A foundry and a machine shop are necessary, and these call for draftsmen to furnish plans and specifications. Moreover, in the purchase, care and distribution of a great variety of supplies, there is a laboratory for giving insight into commercial and business methods, calling for clerks, stenographers, bookkeepers, filing of correspondence, making office reports, etc.

Vocational Guidance

Vocational guidance also finds a place in the activities of this system. In the first place, it is not system and grades that they care about in Gary, but it is what is the best study for the boy. If a boy is unable to master arithmetic but is fine in manual training, they let him put his main time in on manual training, he may become proficient in that, and so in all studies. Finally in the modernized apprentice system of vocational education just noticed, the pupils are at liberty to change from one thing to another as soon as they find no interest or aptitude for a given line of work.

An Inspiration to All

This is by no means a full account of the Gary school, but enough has now been given to show that in school management, as in other lines of business activity, the wide awake, progressive teacher is the one who is not afraid to introduce new methods. The teacher who imagines that there is nothing new to be learned in his work, that his duty is to follow faithfully established customs is sure to retrograde as a teacher. With such an example as Gary before them let earnest teachers everywhere make a study of means whereby to increase the efficiency of their school. Teaching is a living, growing profession, and one must work in earnest to achieve the success one wishes.

Under the name of home economics is included the entire field of home-making activities, and any agency that seeks the betterment of home and school must inquire as to recent advance in the art of home-making, as they find expression in the progressive homes of our land.

It would be strange if the years that have seen such revolutionary changes in business management, such marvelous development in school methods, and such wonderful advance in science and practical invention had not suggested improved methods of home-making. It is necessary to consider such methods since whatever advances the interest of home, directly concerns the welfare of our country.

The New Home-Making

In agriculture, there are certain activities that can not be dispensed with, such as plowing, sowing and reaping. We talk about the new agriculture, meaning that new methods, new equipment and a new viewpoint have enriched, dignified, and made more productive the old agriculture. In school, the fundamental importance of the three R's remains the same as in former years, but new methods, new equipment, and new ideals have so increased the possibilities of life that we talk about the new education. In home-making, there is a round of duties—household care, food and clothing—that can not possibly be eliminated, but new methods, new equipment and new ideals so dignify home duties that we are permitted to talk about the new home-making.

The Concern of All

And there is not an activity in our land that surpasses this in importance, for all the lights and shadows of life are connected with home. This fact is impressing itself upon the consciousness of educators, for education concerns the whole of life. Recent activities in this line are great. There are in the United States hundreds of vocational schools in which practical home-making is the object sought, other branches contributing knowledge that conduces to the development of ideals, general interest, and social insight influencing home-making ability.

The Work of the Schools

In addition to these schools organized for the specific purpose of teaching home-making, we must bear in mind that high schools, quite generally, are now

equipped to give courses in household arts, that is to say courses intended to give the pupils a more general acquaintance with the various activities of the home. And we have just discussed the extension of this teaching into rural schools, and recent legislation of the general government is intended to make this instruction compulsory in all schools. But the foundation only of home-making can be laid in schools. This subject is not, like arithmetic and geography, the educative values of which we virtually exhaust in school days, but it is the concern of life. It can not be reduced to an exact science; it advances with advancing culture in general.

The New Science of Home-Making

The time has come, however, when all the more important processes of home management can be subjected to scientific analysis and from the conclusions reached, a knowledge of the most improved methods can be given which serves our purpose, for we are equally concerned in the welfare of home and school. Advance in home management has been retarded by the general opinion that the subject was beyond the reach of the schools. Like agriculture it was believed by many that home management could be learned only from the experience gained in its pursuit. Time has shown the contrary in both cases. New methods in agriculture in which the conclusions of science are practically applied result in increased returns and breathe new life and happiness into rural life.

There is also a science of home management, and the doctrine, of efficiency as applied in factory and business management is now being extended to home management, and new dignity, charm and zest in home making follow in its train. Just as in former years agriculture failed to take advantage of scientific conclusions and continued in outgrown methods, so countless homes fail to take advantage of scientific methods in household management and content themselves with methods handed down from generation to generation, from mother to daughter, when improved methods are at hand. This is wrong to themselves and especially to their daughters, who will in time go to homes of their own but poorly prepared to meet modern needs.

What the Homes Can Do

No matter where you are located, whether rich or poor, just beginning house-keeping or a veteran in the work, there is always something to learn in the efficient management of home, something that will make work easier and bring greater returns for labor bestowed, something that will inspire to higher ideal and thus enrich life. Like the widening circle raised in water by the thrown stone, such results will constantly pass out from your home and life to others, and so bless the lives of many. And we urge hearty co-operation with the school to make successful the teaching of home arts; you can take an active interest in all home projects and club work that have this end in view. You can support the teachers' work. You can emphasize the importance of the subject taught, by your words and actions you can sanction the methods employed, you can show that you, also, are a pupil in the work of home betterment.

A Wider View

The new home-making shapes its activities in accordance with the wider vision of home and its possibilities, enjoyed from higher planes of thought. It realizes that life is more than food and raiment, that time must someway be found for the one who shapes the management of home to plan and work for the finer things of life, directly affecting the happiness of the home circle.

To render this possible, but at the same time not neglect the material needs of the home, the new science carries into the home as far as practical principles of business efficiency that have revolutionized manufacturing processes, holding that, put in practice in the home, they will eliminate much unnecessary work and make necessary work easier to accomplish. And it urges every home-maker to study the principles that underly efficiency methods in business. To grasp their meaning, realize their bearing, and adopt them in practice is to read a new meaning into home-making, to lift it from drudgery to delight, and make possible dreams of an ideal home. What higher aim can the home-maker propose to herself?

On What Efficiency Depends

Those who have studied efficiency in business assert that it depends upon a few concisely stated principles. We will mention a few of them and we urge every home-maker to consider them carefully. They mean far more than what is disclosed at first reading. They exert a compelling influence in every field of activity. They have breathed new life into business, they can effect a like transformation in home-making. They present nothing new or startling and have been unconsciously applied by many housekeepers ever since housekeeping began. The merits of the new methods consist in studying these principles and consciously applying them. They illustrate how ideals held in mind influence results.

Successful home-makers whose opinion is sought by the most influential household journals in the country, earnestly assert that to master these principles and to thoroughly digest their meaning, and then to act upon them, is a guarantee that home-making will progress economically and productively. It may be slowly and with many discouragements; but once comprehended, these principles will never be neglected or forgotten. They are as fine seed sown in fertile soil, that will mature into efficient homes.

Ideals

The first principal concerns the formation of high ideals. This is necessary to do because no great improvement is possible unless one is working to accomplish some desired end. The farmer who contentedly plods along from year to year, who has not caught the vision of some great good in the future, such as a model farm with model buildings, ease and plenty, will not be alive to new methods. The first thing an efficiency expert asks when he seeks to improve the standard of a plant is, what are its ideals? What is it striving for? The ideal should be so strong, so clearly kept in mind, that it will overweigh present petty difficulties. The clearer the home-maker's ideals, the easier her work, the greater her strength and success. Let your first step be: form a worthy ideal; let it grip your mind and soul. Such an ideal will lighten your labors, and suggest improved methods. Remember that no one accomplishes results higher than the ideal in mind.

The Exercise of Good Judgment

How shall desired results be best attained? This calls for a consideration of all factors bearing on the case. The efficient method is always the wise method. No part of home work is so trivial that it is beneath study. Expert home-makers have made a study of such a commonplace home work as dish-washing, and have shown how to reduce the time and labor required one-fourth, not by working harder, or more intensely, but by utilizing new methods. It is only common sense—hence the efficient and best way—to arrange your kitchen so as to save all unnecessary steps. It is common sense not to stoop for a pot if you can hang it where

you do not need to stoop. Do not be content with doing a thing in a certain specified way because you have been used to doing it so, but ask yourself if it is the best way. Get out of the ruts, pursue this course and the probabilities are you will save time and labor, and effect better results. Others have found this true.

Study and Counsel

It is the housekeeper's duty to acquaint herself with the conclusions of others that have studied every phase of the new home-making. A great amount of expert testimony is constantly being offered earnest home-makers. The pages of the best publications are devoted to the science of home-management. The finest specialists and experts are retained by magazines to suggest how best to prepare foods, how to economize, and how to make clothing. Booklets and advertisements inform the housewife of new methods, recipes, devices, materials. Bulletins issued by the Department of Agriculture are equal to a correspondence course in home economics, and in special lines they are of great value. Many are sent free to any one on application. Why not secure them and equip yourself for work? It is not intended that you should accept every suggestion offered. Exercise your good judgment. The farmer, the teacher, the business man that fails to profit by suggestions of others, does not advance. The efficient mind, is the alert mind, willing to consider the work of others.

Keeping Needed Records

In every successful business a great variety of records are kept. Efficient home-making insists that this principle can be applied to home activities. Housekeeping is a business operation, and there is no reason why business principles should not result in a saving of time, trouble, worry, and expense.

The consulting Household Editor of the Ladies' Home Journal advises procuring a filing drawer, that will hold 1000 cards divided under suitable subheads. She uses such a file drawer, keeping it on top of her desk where it can be consulted at any time. On these cards she keeps all manner of records. There is one set on which are kept "Household Accounts." There are cards for groceries, milk, meat, etc. Every day or so the tickets of purchases are taken from a receiving hook in the kitchen, and the amounts entered on the appropriate card. There is a Recapitulation card for the month, and one for the year, where totals are entered. All receipts are filed away in a vertical letter file.

Good Business Principle

This is system applied to the keeping of household accounts. She has other records as well. One series of cards is devoted to Household Records. For instance, the Linen Record, giving amount, cost price, and date of purchase. Of course, some homes carry this system farther than others, and it depends largely on the size of the home. But in any case it helps. The housekeeper that can turn to a card and find some wished for address, to another and be able to determine at once the number of cans of peaches she has on hand, is certainly relieved of a great deal of worry which is one of the objects sought in the new Home-making, for thereby the home-maker's energies are saved for higher things.

Some method of keeping a record of household expense is especially needed at the present time, when the American people, as a nation, will have to face the problem of retrenchments. This is the first step in business efficiency, and modern home-making is a business proposition, shaped, of course, by the loves and duties of home. The home must prepare to meet the stress of coming times by making generous use

of efficiency methods. You need records in order to intelligently plan your home budget.

Just to Illustrate

In numberless ways, records such as here mentioned prove of great assistance to the home-maker. Take the subject of recipe cards. When you wish to prepare a dish you have on a convenient card the needed recipe and these cards are grouped for special purposes; you can have under one grouping Supper Dishes, giving a list of the dishes that have been found adapted to the tastes and needs of the family. Another grouping is devoted to Quickly Prepared Meals. Another to Emergency Dinners, etc. These groupings come to one in the form of suggestions from friends or magazine articles. You jot them down, try them out, and add them, if found worthy, to your "tried and true" card recipe index. Often they cannot be duplicated because they have never been written down by any one before.

Planning the Work

Efficiency in household management now calls for effective planning. Manufacturers carefully plan when and how to do things. Factories have been remodeled to better advance their conclusions. Modern methods insist that home-makers should make a careful study and plan out the work, not only for each day but for the week. You may think you are doing all possible by present methods, but if you make a careful study of all operations, and plan your work, you will undoubtedly save a great deal of time. This has been the experience of manufacturers that thought they were doing the necessary work in a systematic way. They have been surprised to find how greatly their efficiency has been increased by following this course. There is no reason why this same method should not eliminate useless motion and save time for the home-maker.

A Case in Point

Mrs. Frederick in her book "New Housekeeping" says, that "like all other women I thought that there could not be much improvement in the same old task of washing dishes." But inspired with these new ideas she made a study of such an every day task. She discovered, that for years she had made about one hundred needless motions in that work alone. When she rearranged her kitchen in accordance with new Home-making plans, which we will soon consider, she found she could save fifteen minutes daily. It can be easily figured what that saving amounts to in the course of a week, a month, a year. And this for one simple home activity. It suggests greater triumphs, in other directions. Undoubtedly, tired housekeepers generally can profit by this example. It is such little details as this, that make the new home-making a success. What can you do to apply them?

The Home Time Table

This is another step in modern efficiency methods applied to the home. After having planned out work it is necessary to make out a schedule. This is accomplished by considering what you have to do daily, then what you have to do but once or twice a week. Having determined the time it requires to perform the various home duties, make up a daily and weekly schedule. What to do Monday, Tuesday, Wednesday, and so on, and, finally, what to do each day.

Do not lightly conclude these suggestions are of no consequence. Every business, big or little, in these days of struggle, finds it necessary to thus study and plan its operations. The new home-making says to every housekeeper that it will be a great help to her to thus outline her work. The difference between success and failure in business, drudgery and comfort in home-making, depends on just such

minor details. Why not demonstrate in your own experience the value of these new methods?

Expert Opinion

From "New Housekeepers," a volume by one of the most expert housekeepers of the day, Mrs. Christine Frederick, consulting Household Editor of the Ladies' Home Journal, we quote: "I have done household tasks under the old way and under the new system of dispatching, and I can unhesitatingly say that the old way is the harder and more conducive to "nerves." I think it is not because each household task is hard that many women find themselves fatigued; but that their work is poorly planned—not "dispatched," so that when they come to the task they have less time for it than is necessary, and consequently they waste more energy on it in order to get it done in this hurried time."

Make It Thorough

One trouble in applying efficiency methods to home-making is that it is likely to be done in a spasmodic, half-hearted way, which will defeat the object sought. We are warned that it is necessary to make such planning apply to every detail of home work and pursue it systematically, until it becomes habit. Mrs. Frederick tells us that she has a definite time for "taking stock" of her supplies, and planning out meals. Certain kinds of dishes are prepared in the morning. She has certain plans for dispatching meals. Everything is so arranged that she can route materials from pantry to dining-room with least expense of time and labor. This means that efficiency methods are followed in arranging necessary equipment for home-making. It is scientific grouping that does for the home what it does for the factory.

It Is a Success

The object of applying approved efficiency methods to housekeeping is to save time and labor, with a consequent saving of worry and exhaustion. This is effected by applying the very methods that have proved a success in business. It is not so much the quality of the product that is sought as the ease and reduced labor with which the process is effected. The new home-making is not concerned with supplying new recipes for cooking but how to apply efficiency methods to the process of cooking.

Its message is this: "True and better home-making will come from a higher realization of the great possibilities of the home-maker who uses scientific methods instead of rule-of-thumb. If housework is drudgery to a woman, it is largely because she refuses to accept the efficient methods and improved equipment offered on every hand. Housework, the science of home-making and motherhood, if followed out on an efficiency plan, can be the most glorious career open to any woman—one that will not stultify nor degrade, but which offers her peculiar talents their widest and most varied scope."

The Home Office

If one is to keep records, one must have some place where such records can be filed. The new housekeeping recognizes that the problem is one of administration. Remember we are to introduce into the home modern efficiency methods, which when applied in the factory reduce work and expense, but increase output. If these methods are to be applied in the home, the home-maker must have somewhere in the house a quiet corner where she can be free to do the thinking and planning necessary to co-ordinate the household machinery, and make it run effectively.

It should if possible be a separate little room, away from noise and interruptions, and should be conveniently fitted up with writing table, bookshelves, and files. Here the day's work

is planned, accounts are kept, and the indispensable housekeeping records are made and filed away. The first cost for such a quiet corner is but little, the benefits are great. A suitable outfit will include a kitchen table and chair to match, a scrap basket, scissors, two

THE HOME OFFICE

letter files and a good supply of paper, pencils, memorandum pads, etc. The table and chair may be stained to match their surroundings.

The Personal Attitude

In considering the problems of the rural school we learned how necessary it was to change the point of view in regard to education in general. We encounter the same need when we consider the problem of home management. Earnest workers in this field, women who have reduced housekeeping to a science and have written much on the subject, unite in asserting that the keystone of the whole matter lies in the personal attitude of the home-maker towards her work. Instead of seeing in household work a ceaseless round of drudgery, she must take herself in hand. Instead of following traditions, she must make a thorough-going study of scientific management and apply the same, but in addition she must put her heart, and soul, into the work. She must see in it the most important work in the world.

What Is Necessary

The home-maker must cultivate a cheerful optimistic frame of mind, and hold firm to the belief that no matter how difficult and trying are the household tasks and burdens placed upon her, there are efficient ways to meet and conquer them. But she must approach the problems vigorously, hopefully, and patiently.

No work is going to be agreeable, or work such that you can make it a success, if in your heart you despise it, and long for work that you think is more in keeping with your ability. If you wish to make a really efficient home, hold firm to the conviction that instead of being dull drudgery, home-making in all its details is fascinating and stimulating, and that you are going to apply to it your best intelligence and culture.

Advancing Ideals

One's ideals are never realized in full if they are worthy ideals. No artist paints a picture that comes up to his ideal. No poet, nor sculptor, nor great inventor but realizes his ideal keeps just ahead of him. It is so in home building. There is always room for improvement, no matter how good a housekeeper and home-maker a woman may already be. She should be eager not only to try, but to persistently and intelligently keep on trying, to apply in her home the scientific methods of work and management already proved and tried in shop, office, and progressive homes of our country.

THE EFFICIENT KITCHEN

In no department of home work is it more necessary to adopt efficient methods than in the kitchen. No matter how wide the difference between one family and another in manner of living, by far the greater number of kitchen problems are common to all, and there is only "one best way" of solving them. To create an efficient kitchen is to standardize it; to work out, by a scientific study of the needs and condition of the kitchen, the best way of meeting each need; to work out certain principles of construction and grouping that shall best conform to modern needs. This is the problem that every home-maker has to consider in planning an efficient kitchen.

How Large Shall It Be?

The present tendency is for small, compact kitchens, used only for the preparation of food. The roomy kitchen of older days is no longer desired, convenient dimensions for any ordinary family are ten by twelve. The advantages are obvious. In the small kitchen there is less wall and floor space to care for; the grouping of equipment in convenient relation to one another saves time by saving needless steps and unnecessary motions; moreover, the small kitchen means great economy in construction—which is important in these days when building is costly. Every square foot of flooring and partition cut out of the kitchen may be added to some other part of the house where they mean better health, increased comfort and opportunity for the entire family.

In this small kitchen, equipment can be grouped so as to save steps. The new housekeeping insists on economy of work, and saving the energies of the home-maker. The elimination of unnecessary work—the doing of necessary work in the easiest and most economical way. This question every home-maker that would demonstrate new methods, must consider. If she does no work herself, she will need to supervise the work of others if she would realize her dream of home. To best meet these new conditions, the roomy kitchen of older days has given place to the modern, convenient, small kitchen and this is the kitchen urged by all modern writers.

The Relation of Kitchen to Other Parts of the House

The genius of the new home-making is shown in the care with which many questions formerly little considered are now studied. Every question relating to the kitchen is of special importance. Books and pamphlets treating of its location are being published. The end sought in all cases is to save labor. Success in manufacturing depends on the solution of similar problems. In all cases, the kitchen is closely associated with the pantry, dining-room, and storeroom, also with cellar, and in farm homes with the shed. The arrangement should be such as to save all possible steps in the journeys that must be made to and from these other rooms. The pantry should be located so as to be convenient to both kitchen and dining-room, which means that it must be near or adjacent to both. To meet the latter condition, it is often located between the dining-room and the kitchen, and is then designed to be used both for preparation and storage of food, supplies, china, table linen, etc.

If it is narrow in proportion to its length and located lengthwise between the two rooms, it does not greatly increase the distance which must be traversed from the kitchen to the dining-room. All these rooms should be on the same level. Steps between kitchen and dining-room, or kitchen and porch,

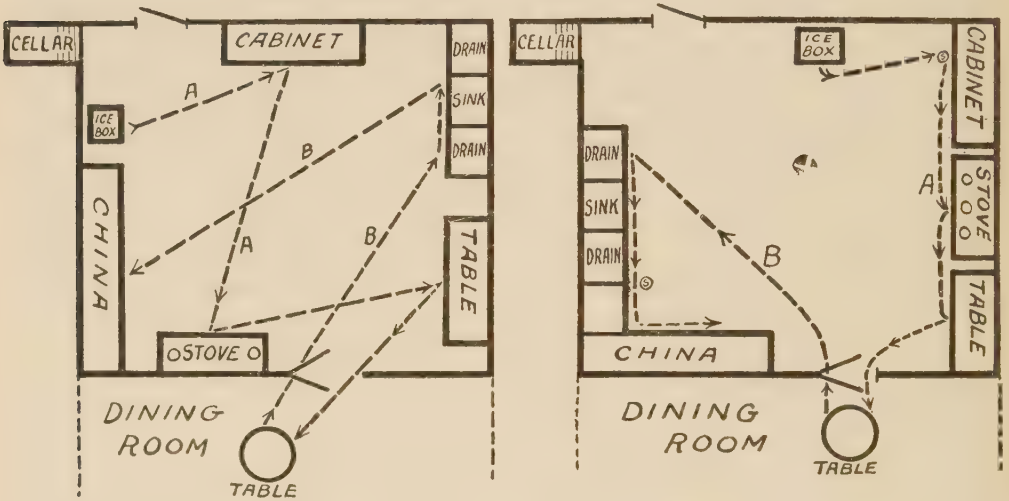
waste time and strength, are dangerous, and may be the cause of broken dishes, or personal injury. The question of floor levels should, therefore, be kept in mind, particularly when old buildings are to be remodeled.

Labor Saving Grouping of Equipment

The new home making insists that the grouping or location in the kitchen of the fixed equipment, such as the stove, sink, serving table, etc., should be most carefully considered and so located that all unnecessary work will be saved. This is the very heart of efficiency efforts in the factory. Manufacturers study the proper location of every piece of equipment used in their work. Great economies of time and work frequently result from changes made in grouping equipment in accordance with such studies. In this connection, careful observers assert that owing to faulty grouping at least two hours a day are lost in the average kitchen. A manufacturer who allows needless loss of time in his factory, is doomed to failure. It may not result in financial failure in a home, but it does result in drudgery which robs life of its sweetness, and home of its charm. The new housekeeping has something very decided to say on this point.

Notice the Difference?

In these diagrams we have two different groupings of kitchen equipment, used in preparing some simple article to be eaten in the dining-room. After the meal is completed, it will be necessary to return the dishes to the kitchen, clean them, and return them to the pantry. In the first diagram, note the recrossing of steps from ice-box and cabinet to the stove, thence to the serving table, then to dining-room. Then trace the route back to drain, sink and cabinet. Compare that network of lines with the few straight lines in second diagram. To make and serve one dish, the saving effected may not be much, but if the process is to be repeated for a number of dishes, several times a day, it soon amounts to considerable. It is such savings as this that makes the difference between profit and loss in factory management, between drudgery, and comfort in the home. This is efficient management.



GROUPING OF KITCHEN EQUIPMENT

Grouping of Utensils

It is not sufficient to group the equipment right we must study the right grouping of the utensils. The main work in the kitchen is preparing, cooking, and serving food. Now, there are small utensils which are distinctly related to each group, and these should never be placed with the utensils of another group. Not only should each group be placed together, but in close proximity to the proper piece of kitchen equipment, so as to avoid unnecessary steps to secure them when needed. Too often the utensils are hung together, or jumbled in a drawer. As Mrs. Child says:

"Why reach across the stove for the potato masher when it belongs over the table? Why walk to the cabinet for the pancake turner when you need it for the stove? A second reason is now seen for the efficient location of the main equipment: a right grouping of such pieces save steps in the main processes of cooking and serving, but it also saves steps in the handling of utensils. In other words, if the stove and sink are wrongly placed the egg-beater and can-opener will be also. Therefore, the pots, pans, skillets, and essential cooking utensils should be grouped near the stove, not across, near the sink or the china. So the mixing bowls and all cake, muffin, and bread pans should be near the working table.

The Importance of the Kitchen

In this section is perceptible the point of view that shapes the activities of the new home-making. The kitchen is regarded as the workshop of the home. This is not to say that the duties there performed are the highest form of home activities, but all agree that they are necessary. Problems of the kitchen have been too little considered. They are like many questions of detail in factory management that no one thought of great importance until under the stress of modern competition made the subject of thought, it was discovered that business success depended upon them.

So in home-making, the needs of modern life make such a demand on the home-maker's time and energy that it is necessary to apply in the workroom of the home the principles of efficient management, so effective in modern business. Every question here discussed has been carefully considered by students of the new home-making science. The results we have set forth constitute new methods, calculated to save time and labor, conserve health and energy, and enable the home-maker to plan her work more efficiently.

Kitchen Conveniences

In business efficiency all labor-saving devices are eagerly welcomed. Often expensive equipment is discarded and a new machine installed whose sole merit is that it increases ease of volume of production. As far as practical, the same principle should apply in kitchen equipment. There are so many ways in which the energies of the home-make can increase the happiness, dignity and comfort of home, that work, step and time-saving devices should be accepted according to circumstances. It is of course understood that judgment is to be used in making selection. This is only efficiency applied in the kitchen.

It is not necessary to list such devices. They are of varying degrees of excellence. All that the new home management urges is that the home-maker be open-minded, not afraid to adopt new plans, and show herself alive to efficiency methods. She dignifies her work, ennobles her calling, when she has its interests so much at heart that she is constantly seeking ways to improve. What hope is there for a business manager who is not actuated by this principle? How can the home-maker hope to succeed in these

days of economic strife unless similarly enthused?

Just One Illustration

Have you a fireless cooker in your kitchen? It has been boldly stated by enthusiastic writers on efficient kitchen methods that the fireless cooker is one of the three greatest inventions of the twentieth century. This statement sounds exaggerated to many, but considering the great help it is in the kitchen, how much fuel, labor, and worry it saves for the home-maker, thereby enabling her to more efficiently care for the higher things of home-making it does not sound so extravagant. It is not unduly expensive: in fact, resourceful homes can provide a home-made one that will be better than none at all.

This is what is meant by being alive to modern methods. This spirit of willingness to try new methods, to make a study of every household activity, to inform the mind, to adopt efficiency methods, is what breaths new life, zest, and enthusiasm into the labors of the home-maker. And here as in business, agriculture, education, or any calling, it is the vision, the pleasing view, the inspiration of a higher life, that dignifies labor, that invites success, that makes life better worth living.

The Most Important Home Department

In no respect is the distinction between old and new methods in home-making more clearly shown than in the increased importance attached to the kitchen. It is now said by many writers on domestic affairs to be the most important room in the house. We could, if necessary, get along without a dining-room, or living-room, or bath-room, but we must have a kitchen. Further, the preparation of food is the most important single work in the home. The new home economy recognizes these facts and regards the kitchen as the work shop of the home. As in a factory, the office may be elaborately fitted up, yet the success of the business rests on the adaptability of the workroom for its purpose; so in the home, other rooms may be more elaborate, but after all the home-maker's success depends to a great degree on the kitchen.

Higher Aspects of Our Theme

We have accordingly dwelt with some fulness on questions relating to kitchen management. They may all be summed up in the statement that principles of business efficiency must be allowed full sway in kitchen management. But the efficient home-maker must keep in mind higher aspects of her calling. What great purpose has she in mind? Unless worthy purposes of this kind are inspiring her work she has not grasped the real message of the new home-making.

The health, comfort and happiness of the members of the home is the primary object sought, but in a still larger sense, the welfare of the entire community should be kept in mind. Each home should strive in some way to better conditions in all homes, at least by force of example. All organized efforts for community good should receive the assistance of the home. This is especially due to the school. We are able to assert that one of the objects we have had in mind in preparing this section has been to convince the homes that improved methods will bring to them time and energy to devote to these wider aims.

PLAN FOR THE STUDY OF AGRICULTURE

EARLY HISTORY

I. Oriental Nations
1. Egyptians
2. Assyrians
3. Babylonians
4. Hebrews

II. Romans

III. Medieval Nations

MODERN AGRICULTURE

I. Agricultural Education
1. Agricultural Colleges
2. Agricultural Experiment Stations
3. Agricultural High Schools
4. Agriculture in the Common Schools
5. Farmers' Institutes
6. Boys and Girls Clubs
7. United States Department of Agriculture
   (a) Bureaus within the department
   (b) Work of the department
   (c) Publications

II. Agricultural Machinery
1. Progress in Last Half Century
2. Most Important Machines
   Harvester
   Seeder
   Thrashing machine
   Corn husker and shredder
   Modern plows and harrows

III. Branches of Farming
1. General Farming
2. Cereal Farms
3. Stock Farms
4. Dairy Farms
5. Fruit Farms
6. Truck or Garden Farms

IV. Scientific Farming
1. Soil Surveys
2. Seed Selection and Testing
3. Use of Fertilizers
   (a) Manure
   (b) Commercial fertilizers
   (c) Fertilizing bacteria
4. Study of Plant Diseases
5. Destruction of Insects Injurious to Crops and Trees

IRRIGATION

I. In the East
1. Egypt
2. China and Japan
3. India

II. In European Countries

III. In the United States
1. The Beginning—Mexico; Work of Indians
2. Spanish Missionaries
3. Mormons
4. The Carey Act
5. The Reclamation Law

IV. Where Irrigation is Necessary

V. Size of Farms

VI. Methods of Distributing Water

VII. Limitations

PLAN FOR THE STUDY OF SILK

I. The Moth

1. Color
2. Size
3. Wings

II. Production of Fiber

1. Moth Cultivation
2. Species
3. Broods
4. Mating
5. Eggs—Number
6. Hatching
7. Worms
8. How Fed
9. Molting
10. Appetite
11. Maturity
12. Spinning
13. Cocoon
14. Moth

III. Raw Silk

1. How Obtained
2. Number of Strands
3. Reeling
4. Hanks

IV. Manufacture

1. Throwing
2. Weaving

V. Production

1. China, Japan, India, Italy, France
2. Annual Output
3. People Employed

VI. Artificial Silk

1. Material
2. Preparation
3. Comparative Cost

PLAN FOR THE STUDY OF COFFEE

I. The Plant

1. Species
   (a) Arabian
   (b) Liberian
2. Description
   (a) Height of Tree
   (b) Shape
   (c) Leaves
   (d) Blossom
   (e) Fruit

II. How Grown

1. Plantations
   (a) Planting
   (b) Harvesting
   (c) Preparation for Exporting

III. Where Grown

1. Brazil
2. Arabia
3. West Indies
4. Java
5. Mexico
6. Ceylon

IV. Experiments in the United States

V. Consumption

1. United States
   (a) Pounds per Person
2. Sweden
3. Holland

OUTLINE ON WHEAT

1. General Description.
   - a. Plant as a whole.
   - b. Stalk.
   - c. Leaves.
   - d. Fruit.
2. History.
   - a. Where first cultivated.
   - b. Early cultivation in general.
   - c. Introduction into Europe and the United States.
3. Species.
   - a. Physical Characteristics.
     1. Bearded.
     2. Bald.
   - b. Time of planting.
     1. Spring wheat.
     2. Winter wheat.
4. Wheat Lands.
   - a. The world in general.
   - b. The United States. (See agricultural Graphics.)
5. Processes of Production.
   - a. Planting.
   - b. Harvesting.
   - c. Threshing.
   - d. Milling.
6. Uses.
   - a. Food for Human Beings.
     1. Flour.
     2. Bran.
     3. Macaroni.
     4. Cereals.
   - b. Other Products.
     1. Feed for animals.
     2. Straw.
     3. Straw-board.
     4. Paper.
7. Markets.

OUTLINE ON CORN

I. History.
   1. Where first known.
   2. Native to what country.

II. Kinds.
   1. Pod.
   2. Dent.
   3. Sweet corn.
   4. Popcorn.
   5. Flint.
   6. Soft.

III. Description.
   1. Names.
   2. Family.
   3. Stem.
      - A. Structure.
      - B. Height.
      - C. Covering.
   4. Leaves and silks.
   5. Roots.
   6. Ears.

IV. Testing.
   1. Select fully ripened, well-developed ears.
   2. Full, straight rows of kernels.
   3. Plump, even grains.
   4. Plant in box in suitable soil.
   5. Watch development of growth, stand, etc.

V. Planting.
1. Soil—Well-drained, rich, sandy loam.
2. Preparation of ground—Plowed, disced, and harrowed.
3. Time of Planting—May 1 to 20.
4. How planted.
   A. With corn planter.
   B. 3 or 4 stalks to a hill.
   C. Hills 3½ ft. apart each way.

VI. Cultivation.
1. Purpose—To sterilize soil; to promote growth.
2. Machinery used—Cultivator and plow.
3. Process begins—June and lasts about six weeks until plants are too large to escape injury by machines.

VII. Enemies.
1. Larva beetles.
2. Root worm.
3. Cutworm.
4. Chinch bug.
5. Weevil.

VIII. Harvesting.
1. Sweet corn.
   a. Use—Canning, drying, roasting ears, etc.
   b. Gathered when grains begin to glaze.
2. Dent corn.
   a. Gathered for fodder when grains glaze.
   b. Ripened corn gathered in October and November by husking, then cribbing.
3. Machines used—Corn harvester, shredder, roller, etc.

IX. Uses.
1. Food.
   A. Animals.
      a. Whole corn, ground, cracked, fodder, etc.
   B. Mankind.
      a. Meal, hominy, roasting ears, canned, etc.
      b. Manufactured products.

Starch.	Candy.
Liquors.	Oil.
Glucose.	Breakfast foods.

2. Cobs.
   A. Fuel.
   B. Pipes.
   C. Syrup.
3. Husks.
   A. Mattresses.
   B. Mats.
   C. Paper.
   D. Stock.

X. Marketing.
1. Cribbed.
2. Shelled.
3. Hauled to elevators.
4. Sent to Mills.
5. Markets.
   A. Local.
   B. General.
   C. Board of Trade.

OUTLINE ON HAY

I. Definition.

II. Plants Furnishing Hay.

1. Timothy.
   - A. Description.
   - B. With what sown.
   - C. Why so named.

2. Clover.
   - A. Description.
   - B. Varieties.
     - a. Red clover.
     - b. White clover.
     - c. Swedish clover.
   - C. Alfalfa.
     - a. Description.
     - b. Kind of soil needed.
     - c. How prepared.
     - d. Number of crops yearly.
     - e. Uses.
     - f. History.
   - D. Blue grass.
     - a. Description.
     - b. Where grown.
   - E. Buffalo grass.
     - a. Description.
     - b. Where grown.

III. Harvesting.

1. Machinery used.
   - A. Mowing machine.
   - B. Scythe.
   - C. Hay tedder.
   - D. Hay rake.
   - E. Hay fork.

2. Process.
   - A. Cut.
   - B. Cure.
   - C. Stack.
   - D. Store in barn.
   - E. Bale for transportation.

IV. Where Grown.

See agricultural graphics.

OUTLINE ON COTTON

A Member of the Mallow Family

I. Genus—Gossypium.

II. Description.

1. Shrublike.
2. Lobed leaves.
3. Flowers, yellowish (like hollyhock).
   - A. Celled capsule which bursts open when ripe.
   - B. Black seeds covered with cellular fibers.
4. Leaves—Dark green with blue veins.

III. Species (Several).

1. Short fiber, or upland.
2. Long fiber, or Sea Island (Southern States).

IV. Cultivation.

1. Planted in fields like corn.
2. Preparation of ground (plowed in spring).
3. Drilling of seeds (Rows 3 ft. apart).
4. Plants appear above ground in 8 days.
5. Plants cultivated 3 times.
6. Seeds ripened in 70 days.

V. Gathering or Harvesting.

1. Bursting of pods or bolls.
2. Picked by hand. All not ripe at once.
3. Sent to gin house (Separated from seed).
4. Pressed in bales of 500 lbs.
5. Bales bound ready for shipment.

VI. Products.

1. Raw material made into cotton cloth.
2. Cotton stalks—manufacture of pulp.
3. Cotton-seed oil.
   - A. Food.
   - B. Lard and butter.
   - C. Food for animals.

VII. Where Grown.

1. Native to tropical regions.
   - A. Cultivated between latitudes 35 degrees north and 35 degrees south.
2. Southern States. (See Agricultural Graphics.)
   - A. Texas (Leading).
   - B. Mississippi.
   - C. Georgia.
   - D. Alabama, North Carolina, Louisiana, Arkansas.
3. Egypt.
4. Russia.
5. China, Brazil, Mexico, West Indies, Asiatic islands of the Pacific Ocean.

VIII. History.

1. Writings of Herodotus.
2. Mentioned by Aristobulus (Alexander's general).
3. Arabians made cotton cloth in 627 A. D.
4. Introduced into Italy 14th century.
5. Mentioned in English history, 1436.
6. Made into cloth in 1736 by Louis Paul.
7. Native of West Indies and South America.
8. Cotton seed brought to Georgia, 1786.
9. First cotton mill (Beverly, Mass).
10. Invention of cotton gin, 1793.

IX. Annual Output.

1. United States (16,134,930) 70 per cent of world's crop.
2. World's output (23,537,790) 1914.

OUTLINE ON SUGAR

DEFINITION.

(A sweet crystaline compound nearly all of which is found in plants.)

2. COMPOSITION.
    1. Elements:
        a. Oxygen.
        b. Carbon.
        c. Hydrogen.
3. HISTORY.
    1. Where first made (India and Arabia).
    2. Introduced into Europe (By the Moors into Spain).
    3. Introduced into the West Indies (By Spanish Colonists).
    4. Introduced for culture in Louisiana (1751).
4. FROM WHAT OBTAINED.
    1. Sugar cane.
        a. Nativity of Plant (Central Asia).
        b. How developed.
        c. Description.
            A. Leaves (3 ft. to 5 ft. long).
            B. Stems.
            C. Height (7 ft. to 12 ft.).
            D. Pith (Contains juice).
        d. Conditions for growth.
            A. Lowlands (Most suitable).
            B. A rich alluvial soil.
            C. Abundant moisture.
        e. How propogated.
            A. By cutting of top joints.
        f. How planted.
            A. In rows (5 ft. to 7 ft. apart).
    2. Cane sugar.
        A. Process in the field.
            a. Topping.
            b. Stemming.
            c. Cutting.
            d. Grinding at the mill (Pressing out the juice and straining it).
            e. Boiling in tanks (Until it becomes granular).
            f. Separated by machinery from the syrup.
            g. Raw sugar, or brown sugar.
                1. Refining process.
                2. Dissolving in hot water.
                3. Adding lime and sulphuric acid.
                4. Passing through bags of cloth and charcoal.
                5. Second boiling.
            h. Granulated sugar. (How made.)
            i. Loaf sugar. (How made.)
    3. Beet sugar.
        A. From what plant derived. (Sugar beet.)
        B. Where grown.

a. Germany (Produces the most).
b. Austria-Hungary Russia, France, Canada, Belgium, Holland, United States.

C. Process.
a. Washing.
b. Diffusion.
c. Boiling.

4. Sugar, Maple.
A. Where grown (Indiana, Ohio, New York, Pennsylvania, West Virginia, New England States, New Brunswick, Ontario).
B. Season.
C. Sap, how obtained.
D. Maple sugar, how made.
E. Flavoring and uses.

5. Sorghum Cane.
A. Introduction into America (1856).
a. Description (resemblance to broom corn and sugar cane).
B. Products. Molasses.
C. Process. Same as for sugar cane.

OUTLINE ON GOLD

I. Description.

1. Precious metal.
2. Color, bright yellow.
3. Specific gravity—19.
4. Atomic weight—196.
5. Melting point—About 2282° Fahr.
6. Properties.

A. Ductility—Grain can be drawn into wire 500 ft. long, or same amount is sufficient to gild two miles of silver wire.
B. Malleability—One grain may be beaten out so as to cover 56 sq. in. (thickness, 1/281,000 part of an inch).

II. Characteristics.

1. Not acted upon by water and oxygen.
2. Not tarnished by air.
3. Not soluble by hydrochloric, nitric, or sulphuric acids.
4. Soluble in mixture of nitric and sulphuric acids.
5. Crystallizes in cubes and other regular forms.
6. Yields aurous and auric salts.

III. Kinds.

1. Pure gold. 24 carats fine. Very soft.
2. Alloy.
A. ¼ copper and ¾ gold, usually used by jewelers.
B. 14 to 18 carats fine commonly used.
3. Coinage.
A. Standard 22 carats fine—2 parts copper and 22 parts gold.

4. Nature.
   A. Gold and silver alloy.
   B. Used in medicine and by dentists.

IV. Where Found.
1. In alluvial deposits (placer mining).
   A. Small particles, called grains or nuggets.
   B. Separated from foreign matter by washing in troughs and pans.
2. In sandstone, slate, quartzite, granite, and serpentine.
3. In fissures or quartz veins.
   A. Mined by machinery.
   B. Rock crushed.
   C. Gold separated by excessive heat.
   D. Amalgamation.
      a. With mercury.
      b. The cyanide process.
   E. Natural gas, coal, and electricity employed as agents in smelting.
   F. Refined by repeated subjection to heat.

V. Use.
1. Coin.
2. Jewelry.
3. Dentistry.
4. Medicine.
5. Photography.

VI. Distribution.
1. North America.
   A. United States.
      a. California.
      b. Montana.
      c. South Dakota.
      d. Utah.
      e. Arizona.
      f. New Mexico, etc.
   B. Canada.
      a. British Columbia.
      b. Yukon.
      c. Saskatchewan.
   C. Alaska—Klondike.
2. South America.
   a. Peru.
   b. Bolivia.
3. New Zealand.
4. South Africa.
5. Ural Mountains.

VII. Statistics.
1. Value of world's production since 1493.
2. Present annual production.
3. Comparative outputs.
   a. North America.
   b. South America.
   c. Europe.
   d. Asia.
   e. Africa.
   f. Australia.

OUTLINE ON COAL

I. Definition.
1. Composition.

II. Formation.
1. Decayed Vegetation.
   A. Pressure.
   B. Heat.
2. Upheaval.
3. Coal measures.
4. Time occupied.

III. Varieties.
- 1. Anthracite.
  - a. Characteristics.
  - b. Where found.
- 2. Bituminous.
  - a. Characteristics.
  - b. Where mined.
    - 1. United States.
    - 2. Other countries.
      - a. Great Britain.
      - b. Germany.
      - c. China.
- C. Semi Bituminous.
  - a. Characteristics.
  - b. Where mined.
- D. Brown coal or Lignite.
  - a. Characteristics.
  - b. Where mined.

IV. Methods of Mining.
- 1. Open working.
- 2. Mines.
  - a. Room and pillar systems.
  - b. Long wall system.
    - 1. Ventilation.
    - 2. Dangers.

V. Manufactured Products.
- 1. Coke.
  - a. How produced.
  - b. Kind of coal.
- 2. Gas. Illuminating.
  - a. By products.
    - 1. Naphtha.
    - 2. Carbolic oil.
    - 3. Creosote oil.
    - 4. Anthracine oil.
    - 5. Pitch.
    - 6. Tar.
      - 1. Chemical Substances.
      - 2. Dyestuffs.
      - 3. Medicinal Products.

OUTLINE OF FOOD

(Home Economics)

I. Materials.
- 1. Animal.
  - (a). Meat.
  - (b). Fish.
  - (c). Poultry.
  - (d). Eggs.
  - (e). Dairy Products.
- 2. Vegetable.
  - (a). Cereal grains and their products.
  - (b). Legumes and other seeds and their products.
  - (c). Roots, tubers, bulbs.
  - (d). Fruit and fruit products.
  - (e). Nuts and nut products.
  - (f). Green and succulent vegetables.

3. Inorganic.
   (a). Calcium.
   (b). Magnesium.
   (c). Iron.
   (d). Phosphorus.

4. Food Accessories.
   (a). Salt.
   (b). Pepper.
   (c). Cinnamon.
   (d). Vinegar.

II. Selection.

1. Wild supply.
   (a). Game.
   (b). Fish.
   (c). Plants.

2. Cultivated supply.
   (a). Flocks and Herds.
   (b). Cultivated crops.
   (c). Orchard and Garden crops.

III. Industries in Connection with Food.

1. Household.
   (a). Butter making, preserving fruits, etc., and in general, the making of products in small quantity or of special quality, for household use or for market.

2. Commercial.
   (a). Milling.
   (b). Canning.
   (c). Baking.
   (d). Sugar refining.
   (e). Starch making.

OUTLINE ON CLOTHING

(Home Economics)

I. Material.

1. Animal.
   (a). Wool.
   (b). Hair.
   (c). Leather.
   (d). Fur.
   (e). Silk.
   (f). Feathers.

2. Vegetable.
   (a). Cotton.
   (b). Flax.
   (c). Ramie.
   (d). Rubber.
   (e). Paper.
   (f). Straw.

3. Manufactured Products.
   (a). Cotton goods, e. g., muslin, gingham, percale, canton flannel, knitted articles, lace, etc.
   (b). Linen goods, e. g., lawn, shirtings, knitted goods, lace, etc.
   (c). Ramie goods, hemp goods, etc.
   (d). Woolen goods, e. g., broadcloth, cheviot, serge, flannel, felt, knitted articles, etc.
   (e). Silk goods, e. g., satin, velvet, crepe, ribbon, knitted goods, lace, etc.
   (e). Rubber goods.
   (g). Fur and leather goods.

II. Properties.
  1. Physical.
    (a). Tensile strength.
    (b). Elasticity.
    (c). Capillarity.
    (d). Porosity.
    (e). Hydroscopicity.
    (f). Conductivity of heat.
    (g). Conductivity of moisture.
    (h). Physics of color.

III. Selection.
  1. Wild supply.
    (a). Fur.
    (b). Feathers.
    (c). Skins.
    (d). Plant fibers.

  2. Controlled supply.
    (a). Plant fibers grown under cultivation.
    (b). Wool, hair, and other products of flocks and herds.
    (c). Silk.
    (d). Artificial fibers.

IV. Preparation.
  1. Materials.
    (a). Textiles.
    (b). Findings (linings, thread, sewing silk, buttons, hooks and eyes, bones, shields, tape, wadding, lambs' wool, etc.).
    (c). Ornaments.

  2. Equipment.
    (a). Pins and Needles.
    (b). Scissors.
    (c). Yard stick and other measures.
    (d). Drafting instruments.
    (e). Patterns.
    (f). Pressing irons.
    (g). Sewing and other machines and labor saving devices.

V. Industries in Connection with Clothing.
  1. Household.
    (a). Spinning, weaving, knitting, lace making, dyeing, stenciling, garment making, and, in general, the manufacture of articles in small quantity or of some special quality.

  2. Commercial.
    (a). Spinning, weaving, knitting, felting, dyeing, printing, garment making, and, in general, the manufacture of articles in quantity with the aid of machinery under factory conditions.

QUESTIONS

INTRODUCTION

Build thee more stately mansions, O my soul,
As the swift seasons roll!
Leave thy low-vaulted past!
Let each new temple, nobler than the last,
Shut thee from heaven with a dome more vast,
Till thou at length art free,
Leaving thine outgrown shell by life's unresting sea!

—*Holmes.*

Curiosity is a desire to know.

Desire leads to action.

Action leads to knowledge.

Curiosity is therefore the road that leads to knowledge.

Because of curiosity the child asks in their order three questions:

What is it?

How is it?

Why is it?

The answers to these three questions cover the field of knowledge, and since the advent of man upon the earth the race has centered its greatest endeavors upon finding the answers.

The results of these endeavors are seen in the progress of the race from barbarism to the stage of civilization found in the most enlightened countries.

What curiosity has done for the race it will do for the child.

It is curiosity that leads the child to ask questions, hundreds of them every day, and the wise parent or teacher will answer these questions, or, what is better, provide means by which the child can find the answer for himself.

Never discourage your children when they ask questions.

"If you discourage curiosity you discourage the thirst for knowledge. If you kill curiosity you destroy the mind."

A good question is always an aid to one in search of knowledge. It stimulates the mind and directs one's research to a specific end. Realizing the importance of questions as an aid to study, the editors of this publication have prepared a list of questions for the use of the home and school. The questions will prove a stimulus to youthful minds, and render interesting that most instructive of all schools—the one gathered around the home fireside.

They have been prepared with the greatest care and have been drawn from all departments of knowledge. Allow us to explain in regard to the number following the questions. It many cases it may be necessary before giving a correct answer to refer to the volumes of a reference work. The numbers refer to the pages in these volumes, where will be found a full and complete answer to the question asked, though you may desire to consult other works.

To illustrate:

What animal has but one foot and eyes on the ends of its horns? 2672.

Look on page 2672, which you will find in Volume V, and you will find the answer.

ZOOLOGY

THE DOG FAMILY

Why do dogs turn around several times before lying down? 840.

Why is the bloodhound so called? 324.

Why is the greyhound valuable for the hunt? 1238.

What is the smallest member of the Dog Family? 1010.

What dog can travel faster than the fastest horse? 1079.

Where did the fox terrier get its name? 1079.

What dog is hunted in Australia like the wolf? 828-9.

What animals are sometimes known as barking wolves? 730.

What is the cry of a pack of jackals? 1483.

How does the pointer mark the prey for the hunter? 2288.

How do the St. Bernard dogs carry on their work of rescue? 2514.

Why do wolves collect in packs in the winter? 3154.

What group of dogs have webbed feet? 2000.

In what breed of dogs do we find unusually large brains? 2710.

What dog is famed for its faithfulness to its master? 1797.

What species of terrier has such long hair that its legs are concealed? 2860.

Why does the owner of the skye terrier let its hair grow down over the eyes? 2659.

What dog makes the best shepherd? 2630.

What dog is very apt at learning tricks? 2311.

What dog derives its name from an old form of hunting? 2614.

What dog vies with the St. Bernard in its usefulness to man? 1999-2000.

What breed of dogs is used in rescue work in the Alps? 2514.

What qualities make the dog an especially valuable assistant of man? 840.

THE CAT FAMILY

What cats have no tails? 519.

Why are Angora and Persian cats prized? 519.

What is the average length of the lion's life? 1648.

How does the lion give evidence of its anger? 1648.

In what ancient country was the cat revered as a goddess? 519.

What animal is a terror to the puma? 2370.

What animal always springs upon its prey from ambush? 1722.

What South American animal is unafraid of the largest prey? 1489.

What member of the Cat Family has a skeleton almost identical with that of the lion? 2889.

How do Englishmen hunt the tiger in the jungles of India? 2889.

FISHES

Is a whale a fish? 3112.

To what family of fish does the freshwater trout belong? 2932.

Why is the surgeon fish so named? 2797.

What gives the sword fish its name? 2808.

What fish is able to ascend waterfalls 20 to 30 feet high? 2532.

Why is the pilot fish so named? 2258.

What is the length of the largest shark? 2624.

What is the value of the annual catch of salmon in the United States? 2532.

What takes the place of the skeleton in the oyster and the clam? 2628.

How are oysters reproduced? 2135.

What are seed oysters? 2135.

Why are anchovies prized as food? 97.

What fish is extensively used for its production of oil? 1818.

What is the purpose of fish hatcheries? 1034.

MISCELLANEOUS

How much food does the elephant eat in a day? 938.

What animal has but one foot and eyes on the ends of its horns? 2672.

How does the zebra differ from the horse? 3192.

How does the elephant "cool off" after a hot journey? 937.

How many muscles are there in an elephant's trunk? 937.

Why do the natives of Africa consider the hippopotamus a nuisance? 1321.

What part of the rhinoceros is used by the Chinese in the preparation of medicine? 2434.

How do alligators differ from crocodiles? 79.

What weapons of defense has the crocodile? 742.

What animal has a squirrel-like head and a body like a rat's? 34.

Why does the badger dig its burrow below the frost line? 221.

What animal can run swiftly on its hind legs? 252.

Of what use to the bat are the patches of skin on its face? 255.

Why is the United States Government exterminating the rat? 2406.

Are spiders insects? 2723.

How does the spider spin its web? 2724.

What animal protects its nest with a trapdoor? 2919.

Is a tarantula a spider? 2825.

How is the scorpion distinguished from the spider? 2579.

To what animal is the name sea lion given? 2595.

What animal has its eyes protected by a tiny transparent cap resembling a watch crystal? 2612.

To what family of animals do the beaver and the woodchuck belong? 2740.

Of what use is mimicry in the animal kingdom? 1854.

From what animal is musk obtained? 1947.

What animal of the Rat Family is valued for its fur? 1948.

To what family does the skunk belong? 2658.

What animal carries its home on its back and has but one foot? 2672.

What animal is least affected by changes in climate? 10.

What parts of the alligator are valuable to commerce? 79.

What low form of animal life is found in ooze and slime? 92.

What animal is fleeter of foot than the greyhound? 114.

What are the units of anthropological study? 115.

What structural difference exists between the ape and man? 118.

What small animal is said by the United States Department of Agriculture to lay waste sufficient land to support 1,500,000 cattle? 2341.

What name is given to the lowest branch of the animal kingdom? 2360.

What are the chief points of difference between the rabbit and the hare? 2391.

What animals carry the bubonic plague? 2405.

Why is the reindeer valuable to the inhabitants of cold countries? 2421.

What animal uses its tail as a fifth paw? 2105.

What animal of the Weasel Family inhabiting both land and water is valuable for its fur? 2129.

BIRDS

What bird is considered in Europe as the emblem of ideal family life? 2770.

How many species of the Swallow Family are found in America? 2798.

For what are the members of the Thrush Family noted? 2883.

To what family of birds does the chickadee belong? 2895.

What duck has long legs and a long neck? 2924.

What bird turns over pebbles and other objects in the search for food? 2945.

How many species of warblers are known? 3054.

What Australian bird lays only one egg? 1723.

What is the best-known American game bird? 1755.

What bird is sometimes carried at the head of a wedding procession in China? 1760.

Why are some birds known as tunnelers and others as masons? 1984.

What bird has a song which seems to say "Can't you see me?" 1805.

Why is the mocking bird so named? 1884.

What birds exhibit the highest art in nest building? 1984.

How does the nightingale compare with the robin in size? 2038.

What bird has the characteristic of dropping great distances through the air and suddenly stopping itself by spreading its wings like a parachute? 2071-72.

What bird has a song resembling the word *teacher* repeated several times? 2130.

What gave the pewee its name? 2231.

How can the phœbe be distinguished from the pewee? 2245.

What bird nests in the Arctic regions and winters in Patagonia? 2277-78.

What bird is often called the "potato-bug bird"? 2335.

To what family of birds does the bobwhite belong? 2379.

How does the raven differ from the crow? 2407.

What bird can be taught to catch fish? 1493.

What birds can fly 800 miles per day? 306.

What is the cause of color in a bird's plumage? 305.

Why do some birds fly south in autumn? 306.

What bird does Bryant describe in *Robert of Lincoln?* 331.

What is the love bird? 1707.

Why is the bobwhite so called? 332.

What peculiar movement has the sandpiper? 2542.

Why is the mallard a favorite game bird? 1755.

What bird stores up acorns in trees and telegraph poles? 3161.

Why does the sapsucker drill holes in trees? 2552.

What bird goes through astonishing movements in the air? 2579.

What bird is the subject of a beautiful poem by Shelley? 2659.

NESTS

Why do birds build nests? 1983.

What birds tunnel their nests in sand? 1984.

What bird's nests are eaten by the Chinese? 1984.

How does the oriole build its nest? 2119.

What birds build a nest 15 feet high and 60 feet in diameter? 401.

How does the tailor bird sew leaves together in nest building? 2817.

What bird lines its nest with thistle down? 1191.

Why do the weaver birds build umbrella-shaped nests? 1984.

What bird hides its nest with lichens? 1391.

Why are some nest builders called masons? 1984.

What bird builds its nest in a dead limb? 2552.

EGGS

Why are some eggs round and others pointed at one end? 911.

What causes eggs to hatch? 912.

How can eggs be hatched away from the mother bird? 1426.

Upon what does the color of the egg depend? 911.

What birds require from 40 to 50 days to hatch their eggs? 912.

Among what birds do the males sit on the eggs at night? 2125.

INSECTS

Is the white ant an ant? 2858.

What insect in Africa is the carrier of the disease known as the sleeping sickness? 2935.

What is a tumblebug? 2938.

QUESTIONS

What trees are damaged by the tussock moth? 2947.

What insect is a paper maker? 3078.

What animal has a nose with blue, black and pink or purple lines? 1761.

What insect was called the "soothsayer"? 1768.

What insect does not eat during its existence in the adult stage? 1804.

What insect is without legs, wings, antennæ or eyes? 2567.

What insect was held sacred by the ancient Egyptians? 2569.

What insect is a sheep pest? 2627.

How many yards of fiber in the cocoon of a silkworm? 2648.

What quantity of mulberry leaves will a silkworm consume before reaching maturity? 2648.

How many classes of ants are there? 108.

How do ants procure and store their food? 109.

What are the duties of the queen ants? 109.

Considering size, how does an ant compare in strength with man? 109.

Why is the dragon fly aptly named? 852.

Where did the earwig get its name? 887.

Why should we destroy the fly? 1054.

How does the larva of the caddice fly incase itself? 441.

What insect digs a pit to catch its prey? 117.

What are the "honey jars" of the ants? 111.

How do bees ventilate the hive? 269.

What is meant by the castes among bees? 267.

How do insects breathe? 1448.

Why does the 17-year locust appear only every 17th year? 597.

What are ant's cows and why are they so named? 110.

How does the moth differ from the butterfly? 1927.

How many legs has a caterpillar? 521.

How do katydids "chirp"? 1540.

BOTANY

HERBS AND SHRUBS

What plant was the pulse spoken of in the Bible? 1717.

From what plant is mucilage made? 1756.

What plant furnishes the tea of South America? 1798.

What plant is called "old hen and chickens"? 1380.

What plants capture and devour insects? 2265, 2793.

What is the distinguishing feature between the poison ivy and Virginia creeper? 2290.

What plant has blossoms sometimes over three feet in diameter, the largest blossoms known? 2395.

What plant closes its leaves if touched? 2608.

What commonly seen twining plant has leaves so small as to be hardly noticeable? 2665.

What is the commercial use for teasel? 2837.

To what family does the loquat belong, and what fruit does it resemble? 1695.

Why is the loco weed so called? 1681.

What sort of stems has knotgrass? 1561.

What hedge plant is extensively used as an ornamental shrub on lawns? 1285.

What flowers are sometimes taken for Jacob's ladder? 1488.

What are the characteristics of the Jack-in-the-pulpit? By what other name is it known? 1483.

What shrub is sacred to winter festivities and is used in decoration? 1361.

By what other name is the guelder-rose known? 1242.

What plant is called creeping Charley? Why? 1240.

What plant has the largest leaf known, six feet in diameter? 3024.

What legend of the early history of Ireland is connected with the shamrock? 2623.

What national flower was used as the type of creation and of silence, the em-

blem of the sun and, conventionalized, became a familiar part of ancient decorations? 1698.

What is the difference between the flower-de-luce and the fleur-de-lis? 1464.

How does the mistletoe grow? 1880.

By what other names is the wild rose known? 2802.

What plant is used for raising the nap on woolen cloth? 2837.

What common garden shrub belongs to the Olive Family? 1639.

What plant is known as "Paraguay tea"? 1798.

What plant is sometimes called yellow sweet clover? 1813.

Of what country is the nasturtium a native? 1963.

Why is the primrose popular as a house plant? 2348.

For what harmless plant is poison ivy frequently mistaken? 2290.

By what other name is the peanut known? 2191.

What plant is sometimes known as the Indian fig? 2347.

By what name is the shamrock known in the United States? 2623.

What plant is called the "rock breaker"? 2566.

Why is the milkweed so called? 1848.

TREES

How do trees breathe? 1606.

What position does the oak occupy in history and literature? 2074.

What is the estimated age of some of the big trees of California? 2610.

How many species of pine are found in the United States? 2260.

From what tree can water be obtained by pressing the bases of the leaves? 2921.

What are the parts of a tree? 2923.

What tree is feared by the Japanese because of its legendary deadly qualities? 2986.

Upon what trees does mistletoe grow? 1880.

To what family does the mountain ash belong? 1930.

Upon what do filberts grow? 1290.

The flowers of what tree grow directly from the trunk? 636.

From the seeds of what tree are buttons and door knobs made? 1482.

The wood of what tree was once used by the Indians in making a kind of cake? 2587.

What tree is of use in the manufacture of soap and candles? 2819.

How can the different species of pine be distinguished? 2260.

The beech is put to what commercial uses? 271.

What tree grows so extensively that a grove can shelter thousands of people? 241.

What tropical tree is of importance for food, furniture and shelter to the natives of India and China? What height does this tree attain? 232.

Why is grapefruit so called? 1215.

From what plant is tallow obtained? 2819.

What tree was once thought to furnish fireproof wood? 1592.

What tree furnishes wood heavy enough to be used for making sinkers? 1639.

What does the name pomegranate mean? 2308.

What tree sometimes grows to a height of 500 feet? 977.

From what kind of wood were mummy cases made? 2808.

Why is the traveler's tree so-called? 2922.

What is the upas tree? 2986.

What tree sometimes bears 100,000 blossoms upon a single stalk? 2818.

MEDICINAL PLANTS

What plant produces a drug helpful in relieving neuralgia? 13.

From what part of the plant's fruit is oil of bergamot obtained? 286.

What name is given resinous drugs having a penetrating odor and healing properties? 229.

The juice of what plant was used by the Indians as a dye? 325.

What familiar plant is used as a tonic? 341.

Why do herb doctors regard the buck bean with favor? 405.

The seeds of what plant give relief in cases of rheumatism, neuralgia and blood poisoning? 445.

From what plant is the drug senna produced? 516.

What value as a medicine has catnip? 524.

Where are quinine and Peruvian bark obtained? 599.

What plant produces a drug which is used as a flesh reducer? 643.

Why is colocynth supposed to be the plant that shielded Jonah, as related in *Jonah iv,* 5-6? 647.

The oil of what tree is an effective deodorizer, disinfectant and antiseptic? 977.

What portion of the herb garlic has medicinal properties? 1131.

What species of jalap has an irregular, shrunken shape? 1489.

The juice of what plant is used to flavor port wine and chewing tobacco, and to produce cough remedies, chewing gum and confectionery? 1632.

From what plant is opium derived? 2315.

MISCELLANEOUS

Who laid the foundation for the study of modern botany? 1647.

In what ways is pollen scattered? 2306.

Give six commercial uses of moss. 1926.

What is the "death cup" of mushrooms? 1943.

What are "fairy rings" and how are they formed? 1943.

What are air plants? 42.

What is the difference between spores and seeds? 2731.

What is the difference between black tea and green tea? 2837.

What poisonous plant resembles wild caraway? 1301.

What title is given the expert who distinguishes different kinds of wood by means of the microscope? 3177.

What plant is known as the devil's snuffbox? 2368.

What is rust on plants? 2502.

What garden plant highly prized for its fruit is a member of the Nightshade Family? 2903.

What is mildew? 1844.

What is kelp and for what is it used? 1543.

GEOGRAPHY

MATHEMATICAL AND PHYSICAL GENERAL

At what points on the globe do meridians terminate? 1821.

What discovery regarding the shape of the earth's surface was made at the South Pole? 113.

Where do navigators in the Pacific Ocean change their date? Why? 1455.

Who was the first to teach the use of globes? 1257.

What are the horse latitudes? 1375.

What mountain range in Syria is often mentioned in the Old Testament? 1609.

What lake in the northern part of Italy was the theme of Vergil in his *Georgics,* and of Catullus in many of his beautiful poems? 1128.

In what region is alkali most noticeable? 76.

How are caves formed? 527.

In what rocks do caves usually occur? 527.

What and where is the largest cavern in the world? 1757.

For what is the Luray Cavern noted? 1717.

What classes of plains are recognized by geographers? 2271.

What is the highest mountain in America? 13.

What high mountains are in Alaska? 50.

Why are the Himalaya Mountains of extraordinary appearance? 1320.

EARTHQUAKES AND VOLCANOES

What are the causes of earthquakes? 885.

What instrument is used for indicating the tremors on the earth? 2603.

What are the parts of a volcano? 3037.

What is known about the causes of volcanic eruption? 3038.

What warnings usually precede a volcanic eruption? 3038.

What is the largest volcano in the world? 1801.

What great mountain range has about 60 active volcanoes? 99.

GEYSERS

How is the water in a geyser heated? 1165.

What region in the United States is visited because of its geysers? 1166.

How does a geyser differ from an artesian well? 159, 1165.

What celebrated geyser is named for the regularity of its eruptions? 1166.

Why do eruptions of geysers take place at irregular intervals? 1165.

What Scandinavian island contains a famous geyser? 1166.

How does Bunsen account for the appearance of geysers? 1165.

RIVERS AND WATERFALLS

What river forms the largest tributary of the Ohio? 2855.

What is the largest waterfall in the world? 3024.

What river of Canada flows for 1100 miles without any obstructions in its course? 1734.

How was the gorge at Niagara formed? 2034.

What quantity of water falls over the precipice at Niagara per minute? 2035.

What determines the supply of water for the Nile? 2039-40.

How much sediment does the Mississippi deposit yearly in the Gulf of Mexico? 2449.

What North American river discharges the largest volume of water into the sea? 2519.

From what point in the United States can water be poured so that it will flow to Hudson Bay, to the Atlantic Ocean or to the Pacific Ocean? 1175.

What is the greatest canyon in the world? 653.

What river in the eastern part of New York is noted for its beautiful scenery? 1385.

What river has over 100,000 tributaries? 1874.

What river drains over two-thirds of the United States? 1874.

What is the navigable mileage of the Mississippi and its tributaries? 1874.

In what river does the water flow in opposite directions in different seasons? 517.

What river is called "China's sorrow"? 1356.

THE OCEAN

What is the theory of tides? 2887.

Why does the ocean never freeze solid in the polar regions? 2077.

What is the depth of the Antarctic Ocean? 113.

What island in the Atlantic Ocean has a mountain over 12,000 feet high? 2851.

What group of islands separates Georgian Bay from Lake Huron? 1766.

What and where is the Coral Sea? 702.

METEOROLOGY

What science treats of the conditions of the atmosphere? 1825.

What instruments are employed by the meteorologist? 1826.

What are the meteorological elements? 1825.

What is the weight of the atmosphere at sea level? 189.

How far above the earth's surface does the atmosphere extend? 40.

What great blanket envelopes the earth? 189.

WEATHER BUREAU

Under what government department is the United States Weather Bureau? 3092.

What are the divisions of the United States Weather Bureau? 3093.

How many different signal flags are used by the United States Weather Bureau? 3093.

What does the white flag displayed over a signal station indicate? 3093.

What flag indicates rain? 3093.

What flag indicates a cold wave? 3093.

How is the approach of a violent storm indicated? 3094.

What instrument records the velocity of the wind? 101.

WIND

How is wind caused? 3142.

Theoretically, how many currents are involved in the general circulation of the atmosphere? 3142.

Why are the north and south atmospheric currents turned from their course? 3142.

Why are winds more constant over the sea than on the land? 3143.

Why are the trade winds so named? 2916.

What are cyclonic storms? 2771.

What wind is named from the number of days it prevails over an African region? 1550.

What wind blowing across parts of Asia and Africa sometimes reaches a temperature of 130 degrees? 2651.

How are monsoons caused? 1898.

RAINFALL

What is the difference between dew and frost? 818 and 1107.

What is the dew point? 819.

How is dew formed? 818.

What is the average humidity over the land? Over the sea? 1390.

What is the difference between clouds and fog? 627.

What is the relation of dust in the atmosphere to rainfall? 627.

Why are the summits of very high mountains often shrouded in mist? 627.

What is the probable height of the highest clouds? Of rain clouds? 628.

What clouds frequently cause thunderstorms? 628.

What are the different forms of clouds? 627.

How are clouds formed? 627.

What region has an annual rainfall of nearly 42 feet? 2399.

What regions in the United States have the heaviest rainfall? 2400.

Why is rain water usually impure? 2399.

What conditions are necessary to produce a fall of rain? 2399.

What is a "suspended" shower? 2399.

Upon what does the distribution of rain depend? 2399.

How is the amount of rainfall ascertained? 2400.

Upon what does the size of raindrops depend? 2399.

How are snowflakes formed? 2674.

GLACIERS

How are glaciers formed? 1174.

How fast do glaciers move? 1174.

What are moraines? 1174.

Where is the Mer de Glace? 1174.

How do the glaciers in Alaska compare in size with those in other parts of the world? 50.

WELLS

How are wells bored? 3102.

From what do artesian wells derive their name? 159.

In what regions are artesian wells particularly useful? 160.

To what depth have artesian wells been driven? 160.

What causes these wells to flow? 160

How does an artesian well differ from a spring? 159, 2733.

Which are preferable, shallow or deep wells? 160.

UNITED STATES

GENERAL

Into how many time belts is the United States divided? 2891.

What state has the largest coast line? 1835.

What is the most important canal in the United States? 2560.

What canal lock passes a boat on an average of every 14 minutes during the 24 hours of the day while navigation is open? 2560.

How will the Panama Canal affect the trade of New York? Of San Francisco? 2153.

What and where is the longest canal in the world? 969.

Where are the greatest levees situated? 1622.

What and where is the Dismal Swamp? 833.

Where is the largest leaf-tobacco market in the world? 1706.

How many islands are there in the entire Philippine group? 2238.

What constitutes the chief insular possession of the United States? 2238.

What insular possession of the United States is three-fourths the size of Connecticut? 2323.

What group of islands is divided between the United States and Germany? 2536.

How is education conducted in Alaska? 52.

How is Alaska governed? 52.

STATES

What New England state has 1600 lakes? 1749.

How does the area of Maine compare with that of all the other New England States? 1749.

What is the rank of Montana in area among the states of the Union? 1899.

What is the area of the coal fields of Missouri? 1876.

How does Mississippi compare in area with Louisiana? With Pennsylvania? 1871.

What state could contain the entire population of the United States? 2863.

Which is the larger, Pennsylvania or New York? 2203.

How does the area of the State of New York compare with that of England? 2020.

What state is known as the Creole State? 1701.

What European country is about one-half as large as Maine? 2805.

How many states the size of Rhode Island could be placed in Texas? 2435.

What three states of the United States have a combined area equal to that of Sweden? 2799.

What state has about the same area as Lake Superior? 2796.

What island in the Indian Ocean is about three times as large as Georgia? 2789.

What state is known as the Flickertail State? 2057.

What other state is almost exactly the same size as North Carolina? 2053.

What state is almost the exact size of North Dakota? 2088.

What state is about the same area as Palestine? 2146.

What state of the United States is about the size of Norway? 2063.

What three states have a combined area nearly equal to that of Alaska? 50.

What three New England states about equal Alabama in area? 44.

What state of the Union is most densely populated? How many inhabitants does it have to the square mile? 2435.

What state has less than one inhabitant to the square mile? 1989.

If Texas were as densely populated as Massachusetts, how many people would it contain? 2863.

In what state is the greatest railway center in the world located? 1420.

What states are first respectively in the production of cotton? 721. Of iron ore? 1862. Of wheat? 1863. Of corn? 709.

Who was the first governor of your state?

What are the foremost states in the dairy industry? 772.

Which is the larger, Texas or the German Empire? 2863.

Which is the larger, Kansas or Illinois? 2970.

What states lead in the production of salt? 2534.

In what states are the most important oil fields located? 2229.

What are the Bad Lands? Where are they located? 221.

In what state is the Garden of the Gods located? 650.

What is "The Empire State of the South"? 1151.

What is "The Equality State"? 3171.

In what states are sugar beets produced? 274.

What state produces the most anthracite? 631.

Which is the larger, Georgia or Florida? 1151.

What body of water bordering Michigan is the busiest waterway in the world? 817.

Which is the larger, Michigan or Illinois? 1835.

How many lakes are there in Michigan? 1836.

What metals are extensively mined in Michigan? 1836.

What proportion of the inhabitants of Michigan are engaged in agriculture? 1837.

How do you account for the equable climate of Michigan? 1836.

Who was the first governor of Michigan? Who was elected governor in 1912? 1839.

How does Michigan rank in the production of beet sugar? 1837.

What part of Michigan is noted for its fruit? Why? 1837.

What is Michigan's annual income from poultry and eggs? 1837.

CITIES

How did Boston add over 1000 acres to its original area? 351.

What is the most widely known and most interesting city park in the United States? 351-2.

What famous statue is in the Public Garden of Boston? 352.

What is the meaning of the Indian name of the peninsula on which the first settlement of Boston was made? 355.

How does Boston rank in population among the great cities of the United States? 2971.

What features of historical interest are found in Salem, Mass.? 2529.

What city is said to be on the "manufacturing frontier"? 2524.

How does St. Louis rank among the cities of the United States as a manufacturing center? 2521.

For what industry is Lynn, Mass., especially noted? 1721.

What city of the United States is known as the "Rose City"? 2321.

What city is known as the "City of Elms"? 2004.

What great museum is in Washington, D. C.? 1965.

What state capital is situated between two lakes? 1741.

On what body of water is the harbor of San Francisco? 2543.

What city is the commercial metropolis of Nebraska? 2097-98.

What city is the commercial metropolis of the United States? 2025.

By whom and when was Los Angeles settled? What was its original name? 1698.

What city is the largest furniture-manufacturing center in the world? 1837.

What city manufactures the most rubber in the world? 44.

What celebrated artist decorated the Boston Public Library? 354.

What building is known as the "Cradle of Liberty"? 353.

What church in Boston is mentioned in one of Longfellow's poems? 353.

What historic building was saved by a poem written by Oliver Wendell Holmes? 2093.

What city is the first wool market in the United States? 354.

How does Boston rank as a seaport? 354.

In what city did the first regular newspaper in the United States begin publication? 355.

What city leads the United States in the manufacture of automobiles? 816.

CANADA

What is the most populous province of Canada? 2099.

What Canadian province is more than three times as large as the United Kingdom? 2099.

What ship canal connects lakes Erie and Ontario? 3102.

What city is called the "Gibraltar of America"? 2384.

What Canadian province is about the size of Vermont, New Hampshire and Massachusetts combined? 1994-95.

What national forest reserve and park in Canada is a favorite resort for campers? 74.

How does Montreal rank with other cities of North America as a port of entry? 1909.

How does the area of Canada compare with that of the United States? 468.

What and where are the highest mountains in Canada? 469.

What are the most valuable mineral resources of Canada? 471.

What is the extent of the forest areas of Canada? 473.

Which province has the largest forest area? 473.

What income is derived from dairy products? 475.

What are the great railway systems of Canada? 477.

EUROPE

What is peculiar about the site of Amsterdam, Holland? 93.

What Roman city was discovered and its ruins partially excavated after it had been buried for over 1500 years? 2309.

What change in the government of Albania was made through the Balkan War? 53.

What country in Europe has a portion of its surface below the level of the sea? 1985.

What inland city of England was made a seaport by the construction of a canal? 1759.

What city of Germany has the most extensive beet-sugar works? 1744.

What city is the educational center of Spain? 1742.

How many people and teams cross London Bridge daily? 1689.

What seaport has the largest fleet of merchant vessels? 1674.

For what is the village of Oberammergau noted? 2179.

How does the population of Paris compare with that of Chicago? 2168 and 576.

What city is the literary, social and art center of Europe? 2166.

Which has the larger population, Petrograd (St. Petersburg), or Paris? 2525 and 2168.

What European country is about the size of Alabama? 2487.

What is the largest and richest cathedral in the world? 2468.

What European country is about the size of Indiana? 2328.

What German state is about the size of South Carolina? 259.

What do the British Isles include? 220.

What European country is about the size of Nevada? 1477.

Why does western Norway have a mild climate? 2063.

What and where is the smallest independent state in the world? 99-100.

OTHER COUNTRIES

What are the most valuable resources of Mexico? 1830.

What classes of inhabitants are found in Mexico? 1831.

How does Mexico compare in area with Texas? 1829.

What group of islands in the Atlantic Ocean is famous for its wine? 1739.

What island in the Indian Ocean has two and one-half times the area of Great Britain? 1738.

Why is it impossible to build "skyscrapers" in Japan? 1493.

What city of India is called the "City of God"? 76.

How do Kalmucks live? What is their religion? 1532.

What celebrated shrines are situated on the site of the old city of Thebes? 1540.

What nomadic people in western Province of Cape of Good Hope are cattle breeders? On what is their religion based? 1379.

How did Cape Horn receive its name? 495.

What sort of beds do the Chinese and Japanese use? 266.

Who are the Bedouins? 266.

What chain of islands is called Adams Bridge? 539.

What island is called the "pearl on India's brow"? 539.

What South American country has an area equal to the combined areas of Texas and New Mexico? 3006.

What African country is nominally Christian? 9.

What ancient Egyptian city is noted as the burial place of Egyptian kings? 8.

Who was the first man to reach the South Pole? 94.

What people spit upon others as an expression of reverence and good will? 1790.

HISTORY

ANCIENT

What sacrifice did the women of Carthage make to save the city? 2374.

How did Cicero force the conspirator Catiline to leave Rome? 523.

How did the Greeks win the Battle of Marathon? 1771.

Why did traitors in ancient Rome fear the Tarpeian Rock? 2828.

What two brothers famous in Roman history were killed in street riots? 1202.

How did Marius defy a Roman election law? 1776.

How did Nero turn the popular fury aroused by the burning of Rome? 1981.

When and why did Rome build her first fleet of battleships? 2373.

With what famous utterance did Cato the Censor conclude every speech? 2374.

How did the Persians discover the secret mountain path leading to the Pass of Thermopylæ? 2875.

How did Cæsar repay the pirates who captured him on the way to Rhodes? 442.

Why did Demosthenes use his oratory against Philip of Macedon? 2238.

How did Pisistratus induce the Athenians to regard him as a popular hero? 2264.

How did Sulla get rid of several thousand of his political enemies? 2787.

Where did Xerxes cross a strait on a bridge of boats? 8.

Who were the Thirty Tyrants? 2876.

For what were the Maccabees noted? 1726.

What Roman general was elected consul six times in succession? 1776.

What noted member of the aristocracy of Athens stood for the rule of the people? 2214.

What name is given to the series of wars waged between Carthage and Rome? 2372.

Who were the Seven Wise Men? 2615.

What was the first confederation of the separate tribes of men? 11.

For what tradition is the ancient town of Alba Longa noted? 53.

What city of antiquity boasted of an extensive library? 69.

For what was the ancient city of Antioch noted? 116.

In what battle did Alexander establish the supremacy of the Western nations? 130.

What Roman road begun in 312 B. C. is still partially intact? 123.

How did the term *vandalism* originate? 3000.

What were the chief occupations of the Anglo-Saxons? 104.

MEDIEVAL

What was the Children's Crusade? 752.

How did Alfred the Great encourage education? 71.

For what crime was Henry II disciplined by the Church? 265.

What empire was revived by the crowning of Charlemagne? 548.

Where did Charles Martel gain his title "the Hammer"? 551.

What were the pledges of the knights of chivalry? 588.

What event caused Clovis to embrace Christianity? 629-30.

Who were the Iconoclasts? 1411.

Who founded Westminster Abbey? 909.

How did the Tudors of England profit by the Wars of the Roses? 959.

What effect on England had the Hundred Years' War? 1392.

Why was Joan of Arc condemned to be burned at the stake? 1509-10.

From what royal family did John of Gaunt descend? 1581.

What is the significance of the Magna Charta? 1745.

What were the powers of the Witenagemot? 3153.

What was the Truce of God? 2933.

What were the causes of the Renaissance? 2423.

What wars were named from a flower? 2481.

Why was the Star Chamber so named? 2746.

MODERN

Why was Elizabeth's reign a glorious one? 943.

What nations were involved in the Thirty Years' War? 2877.

What did Alexander II of Russia do for the cause of liberty? 65.

How did the Seven Weeks' War affect Austria? 210.

How did the United States assist in opening up Japan to the influence of Western civilization? 1494.

How did the Liberal Party in England decrease the power of the House of Lords? 173.

What has been Germany's policy in Alsace-Lorraine? 84.

How did Vasco da Gama find a new route to India? 1126.

What were the causes of the recent Balkan War? 226.

What part did Bismarck play in the founding of the German Empire? 310.

Why did Norway separate from Sweden in 1905? 2065.

What nation is called "The Sick Man of Europe"? 2643.

What political events marked the reign of Queen Anne? 106-7.

What British naval officer perished in 1911 soon after reaching the South Pole? 2583.

What important political gathering was interrupted by Napoleon's escape from Elba? 3026.

Who commanded the army that defeated Napoleon at Waterloo? 3103.

What leader of the French Revolution was assassinated by a woman? 1771.

What British general won the Battle of Blenheim? 1777.

In what Canadian city is there a monument of Montcalm and Wolfe? 1903.

What effect did the revocation of the Edict of Nantes have upon France? 1954.

What European wars marked the rule of Napoleon III? 1959.

What British admiral, on the eve of the battle, gave the signal "England expects every man to do his duty"? 1980.

In what city of New Hampshire was an important treaty of peace negotiated? 2327.

What assembly was known as the States-General? 2749-50.

What powers claim jurisdiction over the Sudan? 2782.

Who was the first provisional president of the Republic of China? 2795.

What nations are the leading representatives of the Teutonic race? 2862.

What is the Triple Alliance? 2929.

Why was the Long Parliament so called? 1694.

What ancient metropolis lost its prestige when the water route to India was discovered? 68.

UNITED STATES

Why did Columbus die in poverty? 661.

Why were the English more successful as colonists than the French? 2973.

Do you think America was justified in rebelling against England? 2974.

Why was a cargo of tea once thrown into Boston Harbor? 356.

Why was Continental Congress so named? 682.

What is the "Cradle of American Liberty"? 1002.

What dispute is connected with the cry "Fifty-four Forty or Fight"? 1021.

Who first said, "Don't give up the ship"? 1603.

What led to the Louisiana Purchase? 1704.

What effect had the Battle of Hampton Roads on the navies of the world? 1266.

What important acts were passed in the Roosevelt and Taft administrations? 2982.

What is the Open-Door Policy? 2103-04.

What bloody war was ended by the intervention of President Roosevelt? 2477.

What were the last two territories to become states? 2982.

In whose administration were the Sixteenth and Seventeenth amendments ratified? 2982.

What and where is the Washington Elm? 3077.

What engagement of the Civil War was known as the "Battle Above the Clouds"? 1695.

Why did Napoleon sell Louisiana to the United States? 1705.

Who commanded the American forces in the Battle of Plattsburg? 1730.

What tribe of Indians constructed circular dwellings with dome-shaped roofs? 1760.

What constitutes the naval reserve of the United States? 1969.

What is the rank of the United States navy among the great navies of the world? 1971.

Where are the United States navy yards located? 1972.

What was the New England Confederation? 1999.

What noted battle was fought two weeks after the treaty of peace had been signed? 2014.

What American patriot of Revolutionary days set forth the cause of the colonists in a pamphlet entitled *Common Sense?* 2139.

Who sent the dispatch "Stars and Stripes nailed to North Pole"? 2193.

Who sent the message "We have met the enemy and they are ours"? 2215.

What was the origin of political parties in the United States? 2297.

Under what name did the Democratic Party first come into power? 2299.

What effect did the Mexican War have upon the political parties in the United States? 2299.

What was the origin of the National Republican Party? 2301.

How was the present Republican Party formed? 2302.

Why was the Greenback Party so called? 2303.

What led to the formation of the Progressive Party? 2305.

Who recovered the remains of John Paul Jones, the first American admiral? 2318.

What campaign of the Revolutionary War did Frederick the Great characterize as "the most brilliant in history"? 2351.

What battle of the French and Indian War changed the destiny of America? 2385.

To what period of our history is the term *reconstruction* applied? 2412.

Where is the oldest city in the United States located? 2513.

What is next to the oldest town in the United States? 2550.

From what nation did the United States purchase Alaska? 53.

For what explorer was America named? 89.

What British officer was executed as a spy during the Revolutionary War? 100.

What political proclamation followed the Battle of Antietam? 115.

What village was the scene of the close of the Civil War? 125.

What is the purpose of Arbor Day? 131.

QUESTIONS ON THE HISTORY CHART, VOLUME III

What ancient poems record the legends of the Greeks?

What god was honored in the Olympian games?

What did the Phœnicians teach the Greeks?

What do we know about ancient Egyptian civilization?

What great men lived during the Age of Pericles?

How did Darius keep in touch with all parts of his empire?

THOUGHT QUESTIONS

Is the world growing better or worse?

Is the struggle for naval supremacy in the interest of international peace?

Could the American slavery question have been settled peacefully?

Was the United States wise in assuming control of the Philippines?

What nations have made the greatest progress in democracy since the Napoleonic wars?

Compare Cromwell with Washington.

How do the cabinets of England and the United States differ in function?

Why was Russia defeated by Japan?

Who has the greater power, the English king or the president of the United States?

What European nation has, in your opinion, the best form of government?

Why has the Liberal Party in England persistently attempted to give Ireland Home Rule?

BIOGRAPHY

STATESMEN, ORATORS AND RULERS

In what debate did Daniel Webster gain his greatest distinction as an orator? 3096.

What books were frequently read by Lincoln in his boyhood? 1643.

With whom did Lincoln engage in a remarkable series of debates? 1645.

Who wrote *Twenty Years in Congress?* 316.

Of what colonial governor did Charles II say: "The old fool has taken more lives in that naked country than I have taken for the murder of my father"? 288.

What American statesman was known as "The Old Man Eloquent"? 17.

What president of the United States has been remarkably successful as the president of a university? 3140.

What president on retiring from office became a member of the faculty of a prominent university? 2817.

What president was elected as the result of the Hard Cider Campaign? 1271.

What Supreme Court reporter became president of the United States? 1277.

What president of the United States learned arithmetic and writing after he was married? 1512.

What statesman wrote *The Great Conspiracy?* 1684.

What French king was surnamed *le Débonnaire?* 1699.

At what age did Louis XIV become King of France? 1700.

What caused Louis Philippe to flee from the throne of France? 1705.

What great newspaper editor was defeated by Grant when he ran for president? 1232.

What American statesman, born in Switzerland, helped to suppress the Whiskey Insurrection in 1794? 1122.

What president of the United States enlisted as a volunteer at 13 years of age when his state was invaded by the British in 1780? 1484.

Who said "Millions for defense, but not one cent for tribute"? 2259.

What ex-president served a long term of years as a representative in Congress? 17.

Who was called the "American Fabius"? 3076.

What American statesman was known as the "little giant"? 849.

What Swedish king wandered as an outcast and aroused the peasants to a revolt which freed his country from Danish tyranny? 1248.

What Roman emperor built a long wall in Britain? 1254.

What eminent American statesman was challenged to a duel by Aaron Burr? 1264.

What vice-president of the United States died during his first year in office? 1303.

For what was Henry of Navarre noted? 1305.

What governor of New York was appointed associate justice of the Supreme Court by President Taft? 1386.

What Italian king entered into the Triple Alliance? How did he meet his death? 1389.

What Roman Emperor of the East was a zealous Iconoclast? 1411.

What Roman orator secured the passage of a law by which people could buy grain at one-half the market price? 1202.

What important position in the English Parliament was Andrew Bonar Law selected to fill? Why was he chosen? 1602.

What Japanese statesman took a prominent part in placing Japan upon a modern basis of civilization and government? 1480-81.

What French diplomat commissioned privateers from American ports to aid France in her trouble with Great Britain in 1793? 1143.

What State document was written by Lycurgus? What was its principle? 1720.

Who has been called the "Washington of South America"? 337.

What celebrated patriot was the first governor of Massachusetts? 1795.

What distinguished service did Senator Nelson Aldrich render the country? 64.

What president of the United States won a Nobel prize? 2043, 2044.

Who was the foremost orator of the Abolitionists? 2241.

What English statesman served three times as premier? 2531.

What American statesman was responsible for the purchase of Alaska by the United States? 2616.

What Canadian statesman organized the rebellion of 1837? 1734.

What Canadian statesman established steamship connection between Canada and South Africa? 1936.

What Canadian statesman has a memorial in St. Paul's, London? 1730.

What Mexican president was assassinated in 1913? 1739-40.

What president of the United States has been called the "Father of the Constitution"? 1740.

Who was the liberator of Haiti? 2912.

What celebrated Athenian statesman was ostracized for advocating a larger army? 140.

What monarch said: "I am the state"? 1700.

MILITARY AND NAVAL COMMANDERS

What American soldier left his fortune to the government to carry on a war in which he fought? What was the war? 1722.

What general in the Civil War afterwards became United States commissioner of railroads? 1514.

In what navies did John Paul Jones serve? 1518.

What Union man, although opposed to secession, repelled the charge of Colonel Slocum in the Battle of Bull Run? 1486.

Who received the name of "Bayard of the Revolution"? Why was it applied to him? 1599.

Who was called "Light Horse Harry"? For what was he noted? 1611.

What American general was known as "Old Fuss and Feathers"? 2585.

What American general was placed on the retired list of the army after

he had been president of the United States? Why was this done? 1214.

What Polish nobleman assisted the Americans in the Revolutionary War? 1565.

What French marshal, who was banished on Napoleon's second abdication, lived for a time in Philadelphia? 1240.

Of whom did Frederick of Prussia say, "He could teach all the generals of Europe"? 2566.

How did Alexander the Great unloose the Gordian Knot? 1195.

What American patriot was called the "Swamp Fox"? 1775.

Whom did McMaster consider the most able American naval commander before the Civil War? 1730.

What American naval officer and writer is considered one of the most eminent naval authorities of his time? 1748.

What American officer of the Revolutionary War won an important battle with an army not authorized by Congress? 2747.

What American naval officer adopted a boy who became his worthy successor in the navy? 2317.

What led to Napoleon's promotion to brigadier-general of artillery? 1956.

How did Napoleon become first consul? 1956.

What was the greatest service that Napoleon rendered France as emperor? 1957.

What American patriot organized the "Green Mountain Boys"? 77.

What great world conqueror died when 33 years of age? 66.

RELIGIOUS LEADERS

What American clergyman greatly assisted the Union cause by delivering a series of lectures in England during the Civil War? 272.

Who founded the Society of Jesus? What led him to enter the Church? 1711.

Who is at the head of the Salvation Army? 347.

Who wrote the hymn *Lead Kindly Light?* 2009.

What missionary and explorer discovered five African lakes? 1675.

What great religious reformer in his boyhood sang in the streets for his daily bread? 1718.

Upon what island was a heroic statue of Father Marquette erected? 1735.

Who was the ideal French Jesuit missionary of New France? 1778.

EMINENT WOMEN

What woman was commissioned a sergeant by Washington? 2265.

Who revolutionized army nursing? 2039.

For what was Susan B. Anthony noted? 114.

Who was the first woman to second a nomination for president of the United States? 18.

By whom was the National Congress of Mothers founded? 1927.

What Canadian dancer has scored a success in Europe? 76.

What nurse of the Civil War became famous as a lecturer and advocate of woman suffrage? 249.

Who was the first woman appointed the head of a bureau in the United States Government? 1596-97.

Who was the first woman to secure a medical diploma in the United States? 315.

What three important events occurred during the reign of Isabella I of Spain? 1474.

What famous diamond was presented to Queen Victoria in 1850? 1564.

MISCELLANEOUS

What eminent explorer was once an American citizen and later became a member of the British Parliament? 2744.

Who was the originator of Arbor Day? 1922.

What American cartoonist was celebrated for his Civil War sketches? 1963.

Who was the founder of modern socialism? 1786.

What navigator first made the Northwest Passage? 2293.

What eminent English journalist lost his life in the wreck of the *Titanic?* 2751.

What was Nansen's greatest contribution to geography? 1953.

What Roman killed his daughter to save her from dishonor at the hands of an emperor? 123.

For what invention is Elias Howe noted? 2617.

On what charge was Anaxagoras banished from Greece? 96.

What Italian is famous, both as a poet and a novelist? 107.

Who is called the "fruit king of Canada"? 76.

How old was Charles Lamb before he produced his most meritorious works? 1579.

What honor was bestowed upon La Salle for his discoveries in America? 1594.

What English war correspondent wrote many novels of adventure for boys? 1306.

What New Jersey scholar was ambassador to Germany? 1319.

What hero outlaw was represented as the last of the Saxons? 1368.

What English shoemaker became the head of a great labor organization in America? 1193.

What celebrated African traveler spent his boyhood working in a cotton factory? 1675.

In what rôles did Joseph Jefferson make himself famous? 1497.

To what position did the Chinese Government call Prof. Jeremiah Whipple Jenks? 1499.

What Roman emperor turned from Christianity to paganism? 1524.

When did Captain Kidd become a pirate? 1551.

What American inventor claimed to have invented the telephone, but was unable to prove his contention in the courts? 1219.

Who was Leif the Lucky? What country did he discover? 1614.

What American explorer was called "the Pathfinder"? 1097.

What celebrated Indian chief terrorized Arizona and New Mexico, 1884-1886? 1163.

LAW, POLITICAL HISTORY AND CIVIL GOVERNMENT

LAW

What is law? What are its sources? 1600-01.

Who was the first great lawgiver? What collection of laws did he formulate? 1601.

In what respects are Roman and English law similar? 1601.

What was the essential difference between the Germanic law and the Roman in the Middle Ages? 1601.

What two eminent English lawyers are famous for interpretive writings on the laws of the classic nations? 1601.

What is the Justinian Code? 1601.

Name four famous lawgivers of Justinian's time. 1601.

What common foundation have the present-day laws of the United States and England? 1602.

How are state laws made? 1602, 1614.

What is a lien? 1632.

What is martial law? 1784.

What is the purpose of the writ of *quo warranto?* 2390.

What are riparian rights? 2448.

What is the legal meaning of *alias?* 75.

To what extent is the principal bound by the acts of his agent? 33.

What are the rights of an alien? 75.

Can aliens make contracts at all times with citizens of our country? 75.

What constitutes a legal tender? 2850.

What system of registering land titles was first successful in Australia? 2908-09.

What was the Code Napoleon? 1601.

What is a "common-law marriage"? 1780.

What are the various forms of negotiable paper? 1977.

What is necessary to secure an appeal after a legal trial? 122.

What method is followed in industrial arbitration? 130.

What steps have been taken towards international arbitration? 131.

What forms of neutrality are recognized by international law? 1988.

POLITICAL HISTORY

How did the name "Uncle Sam" as applied to the United States originate? 2955.

Who proposed the device for the great seal of the United States? 2983.

Who were the Loco-Focos? 1679.

How did the term "lynch law" originate? 1721.

By whom was John Marshall appointed chief justice of the United States? 1782.

What applications of the Monroe Doctrine have been made by the United States? 1898.

What American statesman helped to organize the Government of Hawaii? 1916.

Why were the Alien and Sedition Laws objectionable? 75.

What is the Open-Door Policy? 2103.

What documents are called "the three title deeds of American liberty"? 2109.

What change in the name of our country was effected by the Declaration of Independence? 1201.

What was the Hampton Roads Conference? 1266.

What treaty was entered into by the United States because of the Panama Canal project? 2152.

What American statesman formulated the "nullification" doctrine? 449.

What three American statesmen were known as the "Great Trio" because of their prowess in debate? 449.

What two great nations until recently were ruled as absolute monarchies? 1200.

What was the Commune of Paris? 671.

What great Roman statesman of noble birth gained his power by the aid of the common people? 442.

What form of government did Rome have under Cæsar? 443-4.

What French race of kings exercised a strong influence in the direction of centralization of power? 496.

What country recently altered its form of government from an empire to a republic? 585.

How was this change effected? 585.

What great statesman of Greece gave his name to the age in which he lived? 183.

What was the Civil Rights Act and why repealed? 606.

What is the civil service? 606.

What great constitutional issue was decided by the Civil War? 608.

What was the Clayton-Bulwer Treaty? 615.

How was the income tax legalized? 2833.

CIVIL GOVERNMENT

What is the earliest-known form of government? 1200.

What kind of government existed in the time of Abraham? 1200.

Into what general divisions is government classified? 1200-01.

What is the difference between a monarchy and an empire? 1200.

Name the three general types of local government in the United States. 1201.

What is the prevailing form of government today? 1200.

Is the United States a republic or a democracy? 1201.

What is the meaning of *paternalism* when applied to government? 2181.

Name two powers of government denied the states of our country by the Federal Constitution. 1201.

Which state has the largest number of representatives in Congress? (U. S. Table.) 2970.

QUESTIONS

How many representatives in Congress has your state? 2970.

Explain one difference between the United States cabinet and that of England. 438-9.

How often and where does the president's cabinet meet? 438.

What are the duties of the cabinet officers? 438.

What steps must a foreigner take to become a citizen of the United Staes? 1966-67.

How wide are the parcel post zones? 2164.

Do all the parcel post zones have the same center? 2164.

How does one secure a patent in the United States? 2181.

How many divisions are usually found in an American Legislature? 1613-14.

What are the advantages of a commission form of government? 667.

Why have many small country post offices been abolished? 2333.

In case of death or disability of both the president and vice-president of the United States, who succeeds to the presidency? 2345.

What court in the United States has jurisdiction over the settlement of estates? 2355.

What are the duties of a sergeant at arms? 2611.

What is the title of the presiding officer of the British House of Commons? What other presiding officer has the same title? 2716.

What ancient weapon is now used as a symbol of authority in the British Parliament? 1731.

What is a reciprocity treaty? 2411.

What is a letter of marque? 1778.

How do amendments affect a bill before Congress? 88.

What form of government has Canada? 478.

What is the supreme executive officer of Canada called? 478.

What are the legislative bodies of Canada called? 479.

By what organization is the frontier of the Canadian Northwest protected? 2061.

What is meant by a single tax? 2833.

Upon what theory is the single tax founded? 2834.

Does your state have an inheritance-tax law? An income-tax law?

Why are indirect taxes more popular than direct taxes? 2833.

On what commodities do you pay indirect taxes? 2833.

By whom is your local school tax levied?

Who are exempt from a poll tax in your state?

ECONOMICS

What is the Zollverein? 2826.

How many tariff laws have been enacted in the United States? 2826-28.

What is the difference between direct and indirect taxes? 2833.

What tax was legalized by an amendment to the Constitution of the United States? 2833.

What arguments are there in favor of a single tax? 2834.

What combinations are known as trusts? 2934.

How was the standard unit of the metric system of weights and measures obtained? 1827.

In what cities of the United States are mints located? 1866.

What is the value in United States money of the English penny? 2208.

How are annuities arranged for by insurance companies? 107.

What are national reserve banks? 240.

Into how many reserve districts is the United States divided? 240.

What is the purpose of building and loan associations? 413.

For what purposes are boards of trade maintained? 330.

What is the difference between a board of trade and a stock exchange? 330 and 2766.

What are bonds? 340.

What is the difference between bonds and stocks? 340 and 2765.

ASTRONOMY

GENERAL

What is the largest observatory in the world? 3184.

How does the sundial denote time? 2794.

What did the swinging of the great lamp in the Cathedral of Pisa lead Galileo to discover? 1121.

What universal law is accepted as explaining the motion of heavenly bodies? 1217.

What is the belief of modern science concerning the limits of the universe? 2985.

Who was the first astronomer to foretell the return of a comet? 1261.

Who originated the nebular hypothesis? 1975.

Why do meteors seldom fall to the earth? 1825.

What astronomical instrument was invented by Sir Isaac Newton? 2019.

What is a meteor? 1825.

Why are meteoric showers visible at regular intervals every 33 years? 1825.

What woman discovered seven comets? 1312.

Who was the first systematic astronomer of whom we have any record? 1320.

THE SUN

How many substances are there in the sun? 2792.

How does the sun appear when viewed through a telescope? 2792.

What are sun spots? How large are they? 2791.

Does the sun have any motion? 2792.

Into how many parts do astronomers divide the sun? 2791.

If a man weighing 150 pounds on the earth were placed on the sun, how much would he weigh there? 2791.

How many times heavier than the earth is the sun? 2791.

How many times longer is the diameter of the sun than the diameter of the earth? 2791.

To what class of heavenly bodies does the sun belong? 2791.

PLANETS

What planet has a year of less than three of our months? 1819.

What planet most nearly resembles the earth in its physical conditions? 1781.

What is the outermost planet of the solar system? How was it discovered? 1980.

How many moons has Jupiter? 1526.

Which planet of the solar system has a day of nearly the same duration as that of the earth? 1781.

How long is a day on Jupiter, measured in our time? A year? 1526.

Who discovered the sixth and seventh satellites of Saturn? 1313.

Is there water on Mars? Atmosphere? Ice? 1781.

Which planet of the solar system was believed to exist before being actually discovered? And why? 1980.

How does science account for the rings of Saturn? 2559.

Why do we have changes of season? 2596.

Which planet reflects a light brilliant enough to cast a shadow when the moon is visible? 3010.

By whom were the moons of Mars discovered? 1260.

How can you tell a planet from a star? 2748.

THE STELLAR SYSTEM

Which star is fiery red? 63.

Why does the light of the star Algol seem to diminish at regular intervals? 74.

What is the Big Dipper? 1220.

What are the constellations in the zodiac? 3195.

By what other name is the Milky Way known? 1848.

Are astronomers able to account satisfactorily for the Milky Way? 1848.

How can the constellation Orion be distinguished? 2119-20.

What is the brightest star? 2654.

How many stars are there of the first magnitude? 2748.

THE MOON

How long does the moon require to revolve around the earth? 1911.

Why do we always see the same side of the moon? 1911.

How many moons would be required to make a body equal to the earth in size? 1911.

A man weighing 200 pounds on the earth would weigh how much on the moon? 1911.

Does the moon shine with its own light? 1911.

Why is the moon sometimes invisible to people on the earth? 1911.

What do we mean by new moon? 1911.

Why does the moon present the appearance of a crescent at certain times? 1911.

How many full moons would produce light equal to the sun? 1911.

What parts of the earth's surface are less known to man than the moon's surface? 1911.

Is there water on the moon? Air? Trees? Mountains? Volcanoes? 1911.

How close to the moon would we have to be to get the same view with the naked eye as is given by the best modern telescopes? 1912.

Does the moon affect the weather? 1912.

How does the moon cause tides? 2886.

ECLIPSES

With what heavenly bodies do eclipses occur? 893.

Why do we not have an eclipse of the moon every month? 893.

Why do astronomers make such careful preparations for observing a total eclipse of the sun? 894.

When will the next total eclipse of the sun visible in the United States States occur? 894.

How is an eclipse of the sun caused? 894.

At what phases of the moon do eclipses occur? 893.

PHYSICS

GENERAL

What is the kinetic theory of gases? 1133.

What is the force that attracts bodies towards each other? 1217.

How is the specific gravity of a substance determined? 1218.

Upon what principle does the hydraulic ram operate? 1398.

By what device is the specific gravity of fluids determined? How is it done? 1400.

In how many ways is heat transmitted? 1292.

What branch of mechanics is called kinematics? 1553.

What law of mechanics applies to levers of all classes? 1623.

At what temperature may air be changed to a liquid? 1648.

What famous monk invented the magnifying glass? 219.

What are the uses of the various kinds of barometers? 248.

How high can you raise water by a common lifting pump? 2371.

What instrument is used for measuring very high degrees of temperature? 2377.

For what purposes is the pendulum used? 2201.

How is liquid air produced? 1648.

ELECTRICITY

What is an electric current? 921.

How is an electric current from an ordinary battery transformed into an intermittent current of high voltage? 1440.

What is the principle of the electric battery? 919.

What are dry batteries? 920.

What simple experiments in electricity can be performed by boys and girls? 922.

What is the present theory of electricity? 924.

How does electricity do its work? 924.

What are some of the purposes for which electricity is used in the arts? 924-5.

For what purposes is electricity used in medicine? 925.

What two patterns of electric lamp are in general use? 927.

Upon what principle does the electric motor operate? 930.

For what is electrolysis used? 934.

How can you make an electrophorus? 935-6.

What is the cause of lightning? 1638.

What is radioactivity? 2393.

In electrical apparatus what is a step-up or a step-down transformer? 2918.

By what other name is the X ray known? 3175.

What is an ohm? 2087.

What is the difference between a dynamo and an electric motor? 880 and 930.

By whom were lightning rods first suggested? Upon what principle do they act? 1639.

MAGNETISM

How is an electromagnet made? 934.

For what purposes are electromagnets used? 934.

How may a bar of soft iron become a magnet? 1441.

What is the theory of magnetism? 1746.

What is a magnetic pole? 1746.

For what is the dipping needle used? 1746.

Will a magnet in the form of a ring attract other objects? 1746.

Why are the ends of a magnet named respectively the north and the south pole? 1746.

What is a magnetic field? 1746.

LIGHT

How does light travel? 1635.

How fast does light travel? Who first computed its velocity? 1634.

How many times can light pass around the earth in a second? 1634.

Why can you not see through a bent tube or around the corner of a house? 1635.

What practical application is made of the polarization of light? 2295.

How many kinds of images are formed by a concave mirror? 1870.

What is aberration? 6.

What theories are advanced to account for light? 1636.

What is dispersion of light? 1635.

Why can we see an object with a rough surface more plainly than one with a polished surface? 1635.

Why is a convex lens sometimes called a burning glass? 1617.

Upon what principle does a simple magnifying glass act? 1618.

Why are concave lenses sometimes called reducing glasses? 1618.

How is the kaleidoscope operated? 1531.

SOUND

What is the velocity of sound in the air? 2692.

What property is common to both sound and light? 2693.

What experiments with the air pump demonstrate the use of air in transmitting sound? 43.

What is a microphone? 1840.

Is there any sound when there is no ear to hear it? 2692.

What simple experiments can be performed to show how sound is produced? 2692.

What is necessary to the communication of sound? 2692.

Upon what does pitch depend? 2693.

What determines the quality of sound? 2693.

How are echoes produced? 893.

How are we enabled to hear sound? 884.

CHEMISTRY

What compound of sulphur is extensively used in the arts? 2788.

What chemical element is named after a planet? 2987.

What is water glass? 3082.

What metal is liquid at ordinary temperatures? 1820.

By what process are metals extracted from their ores? 1824.

What chemical compound is known as aqua fortis? 2042.

Into how many classes are oils divided? 2087.

What purpose does oxygen serve in the atmosphere? 2134.

How is oxygen set free in nature? 2134.

Who discovered the cause of fermentation and putrefaction? 2180.

What substance has an estimated value of $100,000,000 a pound? 2394.

What important element was discovered in 1898? 2393.

How does gum differ from resins? 1247.

By what other name is saltpeter known? 2535.

What are the practical uses of spectrum analysis? 2718.

Where does alabaster come from? 49.

From what is alcohol made? What are its chief uses? 61-2.

What is the difference between an alloy and an amalgam? 80.

What are the peculiar properties of aluminum? 85-6.

How did ammonia get its name? 91.

What gas will not unite with any other element? 139.

What is denatured alcohol? 62.

How is alum made? 85.

Who discovered hydrogen? How is it prepared in the laboratory? 1399.

When was iodine discovered? Where are its compounds found? 1457.

What is the second heaviest substance known? Is it easily melted? 1464.

Who discovered laughing gas? How is it used? 1597-98.

For what purpose is litmus used in the laboratory? 1672.

GEOLOGY AND MINERALOGY

What metal was the earliest known? 1467.

Where is labradorite found? 1571.

By what names is lava known when solidified? 1600.

In what states are petrified forests found? 2229.

What is the shape of quartz crystals? 2380.

What valuable ores sometimes occur in the form of sand? 2539.

What precious stone noted for its beautiful color has about the same position as the ruby? 2552.

What mineral forms the greatest part of the earthy substance in the bones of animals? 1641.

What is the value of the annual output of silver in the United States? 2650.

What variety of iron ore is known as loadstone? 1747.

What extinct animal is considered the connecting link between birds and reptiles? 132.

What precious metal is nearly equal in value to gold? 2274.

What metal burns with a brilliant flame? 116.

What fibrous mineral is used in the manufacture of paper? 2818.

Why is granite considered one of the most valuable stones? 1212.

What rock is used for lamp chimneys and windows in store doors? 1833.

To what class of rocks does marble belong? 1771.

What are the precious stones of greatest value? 2343.

What are the uses of manganese in the arts? 1761.

From what country is the largest quantity of marble obtained? 1772.

PHYSIOLOGY AND MEDICINE

THE SKELETON

How many joints in the human skeleton? 1515.

Into what divisions is the human skeleton usually divided? 2656.

How many bones in the skull? 2658.

How many forms of ligaments in the human body? 1634.

What is the length of the vertebral column in a man of average height? 2656.

Into what groups are the vertebræ divided? 2656.

How many ribs in the human skeleton? 2656.

How many bones in the arm? 2656.

How many bones in the leg? 2656.

What are the chief parts of every bone? 340.

What membrane covers the bones? 340.

How do the bones of children differ from those of aged persons? 340.

What are the uses of cartilage? 513.

CIRCULATION OF THE BLOOD

What is the average weight of the heart? 1291.

When and by whom was the circulation of the blood discovered? 2253.

How is the flow of blood in an artery measured and recorded? 2723.

How can one check the flow of blood from a vein? 3005.

How does arterial blood reach the liver? 1673.

What is the function of the portal vein? 1673.

What proportion of the weight of the body is blood? 324.

What gives the blood its color? 324.

What is the function of the white, or colorless, corpuscles in the blood? 324.

How long does it take the blood to pass through the system? 603.

Name the course of blood through the system. (See the cut opposite page 603.)

DIGESTION AND MASTICATION

What is the average capacity of the human stomach? 2769.

What is the average length of the alimentary canal in an adult? 75.

What is the structure of the soft palate? 2145.

How many openings into the pharynx? 2233.

What is the common name for the pharynx? 2233.

What is the largest ductless gland in the body? 2728.

What are taste bulbs? 2831.

What organs in the mouth are only 1-800 of an inch long? 2831.

What other senses aid the sense of taste? 2831.

What are the parts of a tooth? 2838.

What are the first teeth to develop? 2838.

What are the functions of the liver? 1673.

What is the first step in the process of digestion? 827.

What process does the food undergo in the stomach? 827-8.

What is the function of the gastric juice? 828.

What time is ordinarily required to digest a meal? 828.

What is the function of the lymphatics? 1720.

What is food? 1057.

Into what three classes are solid foods divided? 1057.

One quart of milk is equal in food value to how much meat? Bread? Apples? Eggs? Codfish? Cheese? 1058.

NERVOUS SYSTEM

What is the distinguishing property of nervous tissue? 1982.

Why is the nervous system sometimes likened to a telephone system? 1982.

What is the function of sensory nerves? 1982.

How long is the spinal cord? 2725.

How many pairs of nerves branch off from the spinal cord? 2725.

What is a reflex act? 2415.

What comprises the sympathetic nervous system? 1983.

What are the cranial nerves? 733.

What pair of nerves control the organs of speech? 734.

What does the amount of gray matter in the cerebrum indicate? 368.

What proportion of the entire brain does the cerebrum form? 368.

What constitutes the mid-brain? 368.

RESPIRATORY ORGANS

What organ in the body has a framework of cartilaginous rings shaped like a horseshoe? 2914.

Do both lungs in the human body have the same number of lobes? 1717.

What are the lobules of the lungs? 1717.

What is the estimated area of the total surface of the walls of the air cells of the lungs? 1717.

What tubes unite to form the windpipe? 392.

What structures cover the inner surface of the bronchial tubes? 392.

What is bronchitis? 392.

What is the function of the cilia in the trachea? 2914.

What is the function of respiration? 2428.

How much air enters the lungs at an ordinary inspiration? 2428.

In what parts of the lungs does the interchange of oxygen take place? 2428.

How much oxygen does an adult take into the lungs in 24 hours? In a year? 2428.

What is meant by the vital capacity of the lungs? 2428.

MISCELLANEOUS

How large are muscular fibers? 1941.

Into what two general classes are muscles divided? 1941.

What is the typical form of a muscle? 1941.

What are the functions of the papillæ of the skin? 2657.

What is the amount of perspiration secreted by an adult in 24 hours? 2220.

What is the estimated number of sweat glands on the body? 2657.

What is a blister? 2657.

How many papillæ on a square inch of the skin? 2657.

What is the structure of a hair? 1256.

From which end does hair grow? 1256.

How is baldness caused? 1256.

MEDICINE AND DISEASE

Who was the "father of medicine"? 2253.

Who was the most famous Greek physician? 1320.

What worm causes the so-called brickmaker's disease? 1369.

When were hospitals founded? 1377.

How is a person poisoned by the bite of a mad dog? 1401.

What compounds of iron are used in medicine? 1465.

What is the cause of hiccoughs? 1316.

What recent discoveries have been made with respect to leprosy? 1620.

What causes neuritis? 1988.

What is the sign of quarantine on a boat? 2379.

What are the two great schools of medicine? 79, 1364.

What disease is known as wooden tongue? What causes it? 1716.

Who suggested the improvement of the human species by scientific study of the laws of heredity? By what name is that science now known? 1124.

Who first took the pulse into consideration in determining the nature of disease? 1120.

How was vaccination discovered? 1811.

Name the two kinds of bacteria and tell in what way they differ. 220.

From what plant is strychnine obtained? 2073.

What instrument is used for examining the interior of the eye? 2105.

What are the symptoms of alcoholism? 62.

What are the symptoms of scurvy? 2593.

What is serum therapy? 2612.

Who was the originator of modern antiseptic surgery? 1649.

What are the symptoms of pellagra? 2198.

What is nightmare? 2662. .

What disease causes a larger percentage of death than any other known? 2935.

What is veterinary medicine? 3019.

How is the spread of yellow fever caused? 3182.

How is malaria carried? 1754.

How do mosquitoes carry malaria? 1925.

Are typhoid and typhus fever the same? 2951.

How are antitoxins manufactured? 117.

What is the cause of apoplexy? 121.

What are the principal causes of appendicitis? 122.

What drugs are used as anæsthetics? 95.

What is peculiar to the use of stovain as an anæsthetic? 95.

What nations first practiced dissection as an aid to the study of anatomy? 96.

Name the principal antiseptics? 116.

What organ of the body is chiefly affected by the use of antipyrine? 116.

Is pneumonia contagious? 2281.

What is a poison? 2289.

What is an antidote? 2289.

How do antidotes act? 2290.

From what plant is opium extracted? 2315.

What substance is spoken of as the physical basis of life? 2360.

What apparatus is used to revive asphyxiated persons? 2370.

What causes putrefaction? 2376.

From what plant is quinine obtained? 2388.

What instrument does the physician use for distinguishing sounds in the cavity of the human body? 2762.

Of what value are stimulants in medical practice? 2765.

What dangers attend the use of stimulants? 2765.

What treatment should one stricken with sunstroke receive? 2795.

What discoveries in medical science have been of great benefit in surgery? 2797.

What parasite of the human system may vary in length from a few inches to several yards? 2824.

INDUSTRIES

GENERAL

How does the quantity of steel used in the manufacture of pens compare with that used in the manufacture of guns, swords and needles? 2200.

How are the different degrees of hardness in lead pencils secured? 2200.

What city of the United States has the largest distilleries? 2211.

What state produces three-fourths of the peppermint oil used in the United States? 2212.

How are the odors extracted from flowers in the manufacture of perfumes? 2213.

To whom is the invention of gunpowder attributed? When did it first come into general use in war? 1247.

Into what cuts is the carcass of the beef divided by dealers? 273.

How many pictures are required for a moving-picture exhibit of an hour's duration? 1933.

How much money is invested in the moving-picture business in the United States? 1933.

What sum is paid daily in the United States in attending moving-picture exhibitions? 1933.

What are the advantages of using

moving pictures in educational institutions and factories? 1933.

How is limelight produced? 1641.

What was the earliest cloth used? 1646.

What cloth was used by the ancient Egyptians for wrapping their mummies? 1646.

From what is artificial silk made? 2649.

From what country did velvet originally come? 3006.

From what plants is rubber obtained? 2491.

When did hats become an indispensable article of dress? 1282.

What pattern of steam engine operates on the same principle as a water wheel? 2755.

Upon what does the tone of a steam whistle depend? 2756.

Where are the great centers of meat packing in the United States? 1806.

What constitutes one of the chief sources of fuel for Ireland and Scotland? 2193.

What part of the plant is the nutmeg of commerce? 2072.

What fat is extensively used as a substitute for butter? 2094.

What oils are used as substitutes for olive oil? 2095.

How many products are obtained from petroleum? 2230.

What is the total annual output of petroleum in the United States? 2231.

What uses are made of tartaric acid? 2830.

Why is soda water so called? 2681.

What chemist is the father of the modern beet sugar industry? 12.

Are the sponges of commerce of mineral, vegetable or animal origin? 2730.

How are sponges cultivated? 2730.

What fatty material is produced from the oil taken from the head of a whale? 2722.

How many harvesters are manufactured annually in the United States? 2411.

What use do the Chinese make of the horn of the rhinoceros? 2434.

What is the distinguishing feature of the rifle? 2446.

What machine is used for fastening together parts of steel frames in large buildings? 2451.

What city holds the first place in the world in the manufacture of optical goods? 2458.

What instrument was the original moving-picture machine? 2779.

How far is the electrical power generated at Niagara Falls carried? 2034.

MANUFACTURES

What country manufactures the most paper? 2160.

What is the value of the rags used annually in the manufacture of paper? 2158.

From what plants is the starch of commerce obtained? 2746.

What is a condensing steam engine? 2752.

By whom was the oldest pottery in America made? 2337.

Among what people did porcelain originate? 2338.

In what city is the largest watch factory in the world? 3052.

What is the annual value of matches made in the United States? 1798.

How many matches are used every minute? 1797.

What liquid explosive is used in the manufacture of smokeless powder? 2043.

From what substances is ultramarine made? 2953.

In what vessel is sugar evaporated? 2994.

Of what substances is terra cotta made? 2859.

What gum is extensively used in perfumes and ointments? 1950.

In what ways is salt obtained? 2533.

How was ancient Italian lace made? When was the highest perfection in the art reached? 1572.

How is solder made? 1605.

By how many methods is leather tanned? 1607.

For what purpose is the hair of European peasants used? 1256.

Where was India ink originally made? 1429.

How is linoleum made? 1647.

How is steel manufactured? 1468.

How are different degrees of hardness in steel obtained? 2848.

What new form of steel was invented by the gunmaker known as the "Cannon King"? 1566.

How many kinds of nails are there? 1952.

What does *penny* mean when used as a measure for nails? 1953.

When and where was the first steel sewing needle made? 1976.

TRANSPORTATION AND COMMUNICATION

From what beginnings has the carrying trade of the world been developed? 2919.

What English engineer revolutionized methods of transportation by one of his inventions? 2760.

What was the first successful railway locomotive? Where did it run? 1681.

Who invented the sleeping car? 2369.

Who used gun barrels for boiler flues in making a locomotive? 2396.

What are the great railway systems of the United States? 2397.

How are rails for the railway made? 2465.

Who invented the air brake? 3107.

What are the principles on which the air brake is constructed? 41.

What are the dimensions of the *Imperator?* 2754.

What is the horse power of the largest engine on the *Imperator?* 2754.

How do ocean liners detect the approach of icebergs? 1409.

What is the best type of light used in lighthouses? How far can such a light be seen? 1637.

What device is used to measure the speed of ships? How does it operate? 1683.

What is a jetty? 1506.

In what respects is the aeroplane like a kite? 24.

What is a biplane? Who made the first biplane? 25.

What advantage has the monoplane over the air craft? 25.

How does the speed of the aeroplane compare with that of the locomotive? 25.

Of what value is the aeroplane in war? 26.

In what country has a line of air ships been successfully operated? 26.

What instrument with a rapidly rotating wheel is used as a balancing device in certain models of the aeroplane? 1251.

What is pneumatic dispatch? 2281.

Who invented the postage stamp? 2331.

What instruments are required for sending and receiving a telegraph message? 2839.

How can two or more telegraph messages be sent over the same wire at the same time? 2841.

Where has wireless telegraphy become a necessity? 2845.

FOREST PRODUCTS

How many men are employed in the lumber industry in the United States? 1714.

How are logs sawed into lumber? 1715.

How is lumber dried? 1715-16.

What is the dry-kiln process in curing lumber? 1715.

What is the most valuable lumber tree known? 2260.

What is the difference between lumber and timber? 1714.

From what trees is turpentine obtained? 2945.

From what tree is tar obtained? 2825.

What wood is especially serviceable for use under water? 64.

What Central American tree has its wood used in making a purple dye? 1685.

PRINTING

Who invented printing? What was the first book printed? 1249.

Why was the art of printing not practiced by the Romans? 2352.

When and where was the first printing press set up in America? 2352.

Who patented the rotary printing press? Where did he get his idea? 1358.

In what size type is this book printed? 2950.

What patterns of typesetting machines are in general use? 2950.

What was the origin of the newspaper? 2017-18.

How many 12-page papers can some presses print in an hour? 2018.

ART

ARCHITECTURE

Who was the most celebrated architect of St. Peter's at Rome? 1834-35.

For what purpose were the Great Pyramids of Egypt erected? 2376.

Why have poets referred to the Alhambra as "a pearl set in emeralds"? 75.

What nation first made extensive use of the arch? 132.

In what country did architecture have its origin? 133.

Why did the Egyptians build their tombs more carefully than their houses? 134.

How do we know that the Egyptians were acquainted with the principle of the arch? 134.

What were the chief characteristics of Greek architecture? 134.

What were the principal orders of Greek architecture? 134.

In what building did Greek architecture reach its highest degree of perfection? 134.

What new architectural ideas were introduced by the Romans? 135.

PAINTING AND SCULPTURE

Who was the greatest master of painting of the Dutch School? 2422.

What artist produced some 1500 paintings which now adorn the galleries of Europe? 2493.

Through what works is St. Gaudens most widely known? 2516.

What artist painted the frieze called *The Prophets* in the Boston Public Library? 2555.

What is the position of Greece in the development of sculpture? 2589.

During what period of its history did Rome develop a national art? 2590.

Where did the modern revival of Classical sculpture begin? 2592.

What bird is the subject of a famous painting by Jules Breton? 2659.

What American artist was especially noted as a mural decorator? 2.

What Canadian sculptor has won international fame? 80.

What Italian artist painted a cherub on one of his father's pictures when he was only eight years old? 1172.

What is a Madonna? 1741.

Why is Raphael's great Madonna known as the "Sistine Madonna"? 1741.

What is meant by Pre-Raphaelite art? 2405.

What influence on art was exerted by Raphael's work? 2405.

What great artist had charge of the decoration of the Sistine Chapel at Rome? 1834.

Who were the two greatest sculptors of all times? 2588.

What was the distinguishing feature of classic Grecian sculpture which makes it rank above modern sculpture? 2590.

What is the distinguishing feature of Rodin's art? 2463.

What great art master was equally successful in painting, architecture and sculpture? What are some of his great masterpieces? 1834.

Who was the painter of Nuremberg? 875.

What, aside from painting, were his contributions to progress in the line of his profession? 876.

Who may be considered the founder of modern sculpture? 845.

What great artist took his subjects from the lives of the French peasants? 1850.

What celebrated American painter left an unfinished portrait of Washington? 2779.

What eminent Danish sculptor was the son of a carpenter? 2880.

Who was the foremost painter of the Venetian Renaissance? 2894.

Who was the second greatest portrait painter of the Flemish School. 3000.

Who was the leading painter of the Spanish School? 3006.

What are the chief characteristics of Russian sculpture? 2592.

What are the characteristics of Leonardo da Vinci's art? 3028.

Who was the most original and gifted American artist? 3121.

What flower was the foundation of many designs in Egyptian art? 1698.

What former fortress of Paris was transformed into a national art gallery? 1707.

What sculptor became famous because of his statues of Alexander the Great? 1723.

What sculptor has executed many noted Canadian statues and monuments? 1727.

Who painted the *Angelus?* 1850.

What the purpose of the painting of the ancient Egyptians? 2141.

What extraordinary type in sculpture did the Egyptians originate? 2589.

In what period was painting an adjunct of architecture? 2141.

What has Italy contributed to art through painting? 2142, 2143.

What are the twelve great paintings of the world? 2144.

What Grecian sculptor is supposed to have designed the Parthenon? 2234.

What pieces of statuary at Princeton University were designed by a Canadian sculptor? 2356.

What were the distinguishing qualities of Raphael's work? 2405.

The sculptures of what ancient people glorified brute force? 2589.

MUSIC

Who composed the opera *Tannhäuser?* 2823.

Who was the greatest Italian composer of the nineteenth century? 3011.

What is considered the most perfect musical instrument? 3029.

Who was the originator of the music-drama? 3044.

What musical instrument has a body in the shape of a half pear? 1717.

What celebrated musician gave concerts before the Austrian court when he was only six years of age? 1933.

What did the ancient Greeks contribute to music? 1944.

What was the influence of the early Church on music? 1944.

Who is responsible for the staff in music? 1945.

Where did musical composition in its present form begin? 1945.

Who composed the opera *The Tales of Hoffmann?* 2080-81.

How are the different tones in a pipe organ produced? 2115.

Who is considered the greatest pianist of the present time? 2137.

Of what instruments is the piano the outgrowth? 2254.

What American composer became widely known for his war songs? 2479.

For what famous sacred composition is Charles François Gounod known? 1199.

What composer wrote the *Peer Gynt* suite? 1238.

When was the hurdy-gurdy invented? 1394.

How was the original harmonica played? 1273.

Who is called the father of the symphony and the quartet? 1288.

What stringed musical instrument was used by the ancient Egyptians? 1723.

What faults in operatic composition did Wagner correct? 1946.

What races tend to create national schools of music? 1946.

EDUCATION AND PHILOSOPHY

Who was the originator of our graded schools? 2780.

What are trade schools? 2915.

What American educator wrote the song *Rocked in the Cradle of the Deep?* 3133.

What are the most noted colleges for women in the United States? 3158.

Who organized the first manual training school in the United States? 3161.

What great school was founded by Mary Lyon? 1722.

What are some of the aids to memory? 1815.

Who was the first woman to be made a member of the Academy of Arts and Sciences? 1881.

What are the chief characteristics of the Montessori method? 1905.

Of whom was it said: "It is out of the folly of Stanz that has come the primary school of the nineteenth century"? 2225.

What Greek philosopher established the Academy? 2274.

What English capitalist provided free tuition for American students at Oxford University? 2437.

What great services did Socrates render the world? 2680.

What was the origin of the Academy? 9.

Who was Aristotles' most distinguished pupil? 66.

When does apperception become active? 123.

How does the percentage of illiteracy in the United States compare with that of other large nations? 1422.

What is the observational method of teaching? 1442.

To what state do we owe the beginning of the American common school? 669.

What American legislative body passed a law noteworthy as the first of its kind in the world? 669.

How were the children of the Southern colonists educated? 669.

What is the relation of the United States Government to education? 671.

What is the oldest university in America? How does it rank among American universities? 1280.

What important university is at Palo Alto, Cal.? 1615.

Did the ancient Egyptians know the rudiments of geometry? 1148.

How early did people advocate the education of the blind? 321.

For what educational principles did Alexander Bain stand? 222.

Why is Aristotle called the father of science? 141.

In what ways have Aristotle's writings influenced the world's thought? 142.

What philosopher regarded pleasure as the highest aim in life? 140.

What Greek philosopher walked with his pupils as he taught them? 141.

What was the principal difference between Plato's chief interest and that of Aristotle? 141.

What German philosopher wrote *The Philosophy of the History of Man?* 1309.

How may autohypnotism be induced? 1406.

What is the psychological basis of the association of ideas? 1416.

To what is lack of imagination generally due? 1423.

For what purpose do instincts seem to exist? 1452.

What ethical system in ancient times was followed by the Sophists? 1296.

What famous German philosopher was the son of a saddler? 1539.

What work contains the moral philosophy of early India? 1651.

How many methods of reasoning are there? 1685.

What does a person remember first, after recovering from the effects of a blow on the head? 1815.

What is meant by types of memory? 1815.

Name six factors that aid in memorizing. 1815.

When is the memory of a girl better than that of a boy? 1816.

LITERATURE

ANCIENT ORIENTAL NATIONS

How long ago were the ancient Oriental nations producing literature? 1650-51.

What ancient peoples had writing tablets of clay? 1650.

What literary production of an ancient people has had a greater influence on the human race than any other book? 1650.

What forms of poetry were written by the ancient Hindus? 1651.

How were scholars enabled to translate Egyptian hieroglyphics? 2482.

In what Oriental story of antiquity do we find the germ of our fairy tale, *Cinderella?* 1650.

What work constitutes the Chinese bible? 1650.

Why does a specialist in languages study Sanskrit? 1651.

How did a Persian monarch use the side of a mountain as a writing tablet? 1651.

What part did religion play in early Oriental literature? 1650-51.

GREEK LITERATURE

Why is Greek literature the most important of ancient times? 1651.

What forms of poetry did the Greeks develop in their first literary period? 1651.

What great event is celebrated in Homer's *Iliad?* 1417.

Who were the three tragic poets, the three historians and the three philosophers of Greece during the Attic period? 1652.

What was the ideal of the Greeks in producing their literature? 1653.

Contrast this with the ideal of the Romans. 1653.

What is meant by the Alexandrian School? 1652.

What Greek monarch founded a famous library at Alexandria? 1652.

What three cities were successively centers of Greek culture? 1652.

ROMAN LITERATURE

What important place in early Roman literature is held by a Greek slave? 1653.

Who was the first Roman poet? 1653.

Who were early writers of comedy? 1653.

Why are Cicero's writings worth studying? 1653.

What poets made the reign of Augustus glorious? 1653.

What Roman writer perished in the eruption of Mt. Vesuvius? 1653.

What is the greatest contribution made by Roman writers to civilization? 1653.

MEDIEVAL LITERATURE

GENERAL

What famous monarch made a collection of German minstrelsy? 1656.

What German dynasty encouraged the literature of chivalry? 1657.

What is the subject matter of the great German epic the *Nibelungenlied?* 1657.

What Swiss legend of medieval times is the subject of a great drama? 2848.

Who are the characters in the Icelandic production called the *Prose Edda?* 1658.

From what medieval writings do we learn about Old Norse customs? 1658.

Who is the father of Danish literature? 1658.

What effect had the fall of Constantinople on the development of European literature? 1652.

What is the relation of Arabian literature to ancient literature? 1653.

What Arabian city was a literary center in the ninth century? 1654.

What were the literary languages of Italy before the 13th century? 1654.

What Italian girl was the inspiration of much of Dante's poetry? 263.

What famous Latin hymns were written in the Middle Ages? 1403.

What early French writer influenced Sir Walter Scott? 1654.

Who were the troubadours and trouvères? 2932-33.

What is the oldest epic of the Romance languages? 1655.

What traits of Spanish character dominated the early literature of Spain? 1655.

Where may we look for the beginnings of Russian literature? 1656.

MODERN LITERATURE

GENERAL

With what period of Roman literature does the reign of Louis XIV of France correspond? Why? 1655.

What eminent French writer was imprisoned for several months in the Bastille? 3039.

Who is the greatest Romantic novelist France has produced? 1655.

In what famous French play did Maude Adams assume the title rôle? 2485.

What Spanish novel has had continuous popularity for two centuries? 1655.

Who was the creator of the modern Spanish drama? 1655.

What Portuguese epic has had international fame? 1656.

What renowned Russian writer toiled in the fields like a humble peasant for the sake of principle? 2902.

Upon what production did Goethe labor from early manhood to old age? 1189.

Why are the Brothers Grimm known the world over? 1239.

What is the secret of the charm of Hans Andersen's fairy tales? 98.

What is George Brandes' definition of literature? 370.

What Swedish writer may be compared to Addison? 1658.

What is the title of the national song of Denmark? Who wrote it? 1658.

What is the theme of the prose dramas of Ibsen? Against what did he direct his satire? 1408.

What Belgian dramatist has received the Nobel prize for literature? 1743.

How does Sudermann rank among contemporary German writers? 2782.

ENGLISH LITERATURE

Why did English literature originate in Continental Europe rather than in England? 1659.

Who was the first poet of Christian England? 1659.

What is the earliest English history written in the native tongue? 104.

What was the effect of the Norman Conquest on English literature? 1659.

What are the King Arthur legends? What English writers have written down these legends? 161.

What early poet used a dialect so effectively that it became the standard literary language? 1660.

When were the sonnet and blank verse introduced into England? 1660.

What events of world-wide importance made possible the achievements of the Elizabethan Period? 1660.

Why was Ben Jonson a unique figure in the drama of the Elizabethan Period? 856.

What dramatic genius of the Age of Elizabeth gave promise, though dying at the age of 29, of writing plays as wonderful as those of Shakespeare? 1777.

How were women's parts acted in the time of Shakespeare? 855.

Who wrote the comedy *Every Man in His Humour,* in which Shakespeare had a part? 1519.

Why was there a decline in English literature after the Elizabethan Period? 1660.

Why are the plays of the Restoration Period no longer read with pleasure? 856.

What famous allegory of the Restoration Period was produced in a prison? 419.

Name the greatest writers of the Victorian Period. 1662.

In what form of poetry was Robert Browning especially gifted? What was his message to the world? 398.

What English novelist wrote stories intended to correct abuses of his day? 824.

Compare Thackeray and Dickens as to style and theme. 2868.

Whose death was the inspiration of Tennyson's *In Memoriam?* 2855.

What theme is found in the novels of Thomas Hardy? 1271.

How did Thomas Carlyle affect the moral standard of his age? 505.

Who are the present-day English novelists and dramatists? 1662.

What American actress has won great popularity in rôles of plays written by James Barrie? 17.

What is the name of the first English work having all the requirements of the novel? 2441.

What writers, living in the same century, produced respectively the greatest epic and the greatest allegory in English literature? 1660.

What English poet of the 18th century was especially skillful in the use of the rhyming couplet? 1661.

What was the Kit-Kat Club? 1559.

Compare the poetry of the 18th century with that produced in the Romantic Period. 1661.

How did Samuel Johnson characterize Addison's style? 19.

Who were the most eminent of the Romantic poets? 1661.

What great prose writers lived in the Romantic Period? 1661.

What poet originated the expression "A thing of beauty is a joy forever"? 1542.

What was the Lake School of poetry? 1578.

What traits of character of the poet Robert Burns are found in his poetry? 426.

What famous poet of the Romantic era took part in the Greek War for Independence? 435.

Why is Jane Austen a unique figure in English literature? 199.

What were the pen names of Charlotte Brontë and her two sisters? 392.

Upon what poem does the fame of Thomas Gray chiefly rest? 1219.

In what respects does the prose of the Victorian Period outrank that of any other period? 1662.

Who is Arnold Bennett? 284.

What prominent British authors are connected with the modern Irish drama? 1464.

What did Theodore Roosevelt write of the Irish Plays? 1465.

Who is Lady Gregory? What has she written? 1237.

What are the striking characteristics of the writings of John M. Synge? 2810.

What modern English author is noted for his stories of the sea and his narratives in verse? 1790.

In what forms of poetry does Alfred Noyes excel? 2069.

What modern English novelist writes stories dealing with actors and writers? 1822.

What famous English writers have had the honor of being poet laureate? 2283.

What books were published in 1914? (See Literature Chart.)

Who is England's poet laureate? 384.

AMERICAN LITERATURE

Why were there so many theological and historical writings produced in America during the Colonial Period? 1662.

Who made a famous Indian translation of the Bible? 942.

What was the first book printed in the colonies? 1663.

Of what literary classic is Benjamin Franklin the author? 1663.

Who were the "Hartford Wits"? 1663.

Who was the first American novelist? 1663.

What American writer won recognition in Europe early in the 19th century? 1663.

Who wrote *The Legend of Sleepy Hollow?* Where is the scene of the story laid? 1473.

What groups of historians has America produced? 1663.

What famous group of American poets followed Edgar Allan Poe? 1663.

In what way is the literary work of Sidney Lanier similar to that of Poe? 1589.

Who was the first important American poet? 403.

Compare Bryant and Wordsworth. 404.

What American novelist is sometimes called "the American Scott"? Why? 695.

What eminent American historian was instrumental in establishing the Annapolis Naval Academy? 233.

What distinguished English essayist was a close friend of Emerson? 950.

What are the striking characteristics of Emerson's prose style? 951.

How did Hawthorne differ from Emerson, Whittier, Lowell and Longfellow? In what respect did he excel them? 1287.

What novelist is the chief representative of the realistic school? 1384.

What occasioned the songs *Yankee Doodle, Dixie* and *The Battle Hymn of the Republic?* 1404-05.

Under what circumstances was *The Star Spangled Banner* written? 1549.

Why did Samuel L. Clemens choose the pen name of Mark Twain? 616.

What was the inspiration of much of Eugene Field's verse? 1019.

What interesting development of American fiction has occurred since the Civil War? 1663.

Who is the novelist of life in Virginia? 1663. In Kentucky? In Louisiana? In Georgia? In New England? 1664.

What American women today take high rank as novelists? 1664.

For what great work is Horace Furness distinguished? 1664.

In what famous periodical did Holmes's *Autocrat of the Breakfast Table* first appear? 1363.

For what occasion did Lowell write the *Commemoration Ode?* 1710.

Why do we regard Lowell as our representative man of letters? 1710.

Compare Longfellow and Whittier. 1693.

In what respect are Longfellow and Walt Whitman unlike? 1693.

What recognition of Longfellow's literary position has been accorded by England? 1693.

What epic poem has the meter used by Longfellow in *Hiawatha?* 1532.

Who is the author of *The Awakening of Helena Richie?* What are the chief merits of her fiction? 801.

What novels by Winston Churchill treat of American politics? 596.

What modern American novelists have written stories of adventure? 1664.

What American writer became deaf and blind in infancy? What has she written? 1543.

What gave Hawthorne the inspiration for his allegory *The Great Stone Face?* 3124.

Who wrote the song *Home, Sweet Home?* 2188.

What celebrated stone quarry is described in Longfellow's *Hiawatha?* 2263.

CANADIAN LITERATURE

When did the feeling of nationality begin to characterize Canadian literature? 1664.

What poet was called the "Canadian laureate"? 1094.

What pen name was used by Thomas C. Haliburton? 1259.

What are the favorite themes of the poet William Wilfred Campbell? 466.

What Canadian poet has been called the "Swinburne of Canadian poetry"? 505.

Upon what does Sir Gilbert Parker's fame as a novelist chiefly rest? 2170.

What woman of Indian descent gained recognition as a poet? 1512.

What Canadian author adopted Ralph Connor as a pen name? What are the characteristics of his literary work? 1195.

What author has won distinction for his stories of animal life? 2614.

What Canadian poet is called "The Kipling of the Arctic World"? 2613.

What is the finest poetical drama in Canadian literature? 1753.

What Canadian writer has been called "a living example of good citizenship"? 1636.

MYTHOLOGY

On what myth is the expression *Halcyon days* based? 1258.

In classic myths who was the most beautiful woman of her time? 1297.

What god daily drove his flaming chariot across the sky to his western palace? 1298.

According to mythology, what famous Greek strangled two serpents when he was eight months old? 1308.

Why did Leander nightly swim the Hellespont? 1310.

What was second labor of Hercules? 1397.

Who was the Greek god of marriage? 1402.

Who was the architect of the Hall of Mysteries at Eleusis? 1412.

What Grecian mythological character was changed into a beautiful white cow by Jupiter? 1456.

What daughter of Agamemnon, offered to Diana as a sacrifice, was rescued by the goddess? 1461.

What Egyptian goddess typified the moon? How was she represented? 1475.

Why did Janus, the porter of heaven, have two heads? 1492.

Why did Jason marry Medea? 1495.

According to mythology, what winged monsters poisoned everything they touched? 1274.

Who were the Valkyries? 2996.

What does *werewolf* mean? 3104.

What god in Northern mythology is identified with Satan? 1686.

For what was Midas, King of Phrygia, noted? 1841.

Who were the Myrmidons? 1950.

What facts are generally recognized concerning myths? 1950.

Why did Plato refuse to admit Homer's writings in his *Republic*? 1951.

How does Greek and Roman mythology explain the origin of all things? 1951.

What was the probable origin of myths? 1951.

Among what peoples was Norse mythology common? 1951.

Who is said to have enchanted the beasts by his playing on the lyre? 2121.

What mythical bird was said to arise from the ashes of another? 2246.

What character in Greek mythology had but one eye and that in the middle of his forehead? 2308.

What mythological character was said to pass six months of the year on earth with her mother and six months underground with her husband? 2358.

Who was Psyche? 2365.

What mythological hero was invulnerable except in his heel? 12.

What mythological hunter was killed by wild boars? 22.

What mythical substance was supposed to be food for the gods? 88.

What mythological character was noted for her domestic nature? 101.

Who was chained to a rock and thus placed at the mercy of a sea monster? 101.

What mythological character is said to have been squeezed to death by Hercules? 112.

Who was a favorite god of Grecian mythology? 121.

What nymph was changed into a fountain? 137.

Who were the fabled leaders of the Argonauts and why did they go in search of the golden fleece? 139.

What mythological character was said to have 100 eyes? 139.

By what means did Ariadne save her lover after he had slain the Minotaur? 140.

What German poem, based on myths, ranks among the world's great epics? 2035.

Of what musical drama is the story of this poem the basis? 2035.

AGRICULTURE

GENERAL

Why is alfalfa not more etxensively grown in the Eastern States? 69.

Why is alfalfa such a valuable crop to the farmer? 70.

Why is alfalfa especially valuable to the dairy husbandman? 70.

What are the chief enemies of alfalfa? 70.

What agencies unite in the formation of soil? 2682.

What are the different varieties of soil? 2683.

How are farmers kept informed of the work of the agricultural experiment stations? 36.

In what three ways do agricultural experiment stations carry on extension work? 36.

What is the Reclamation Law? 1471.

What proof have we that seeds retain their vitality for thousands of years? 37.

How much tea is annually exported from China? 2836.

What is the daily capacity of a modern thrashing machine? 2882.

What country leads in the production of tobacco? 2898.

From what plants is sugar obtained? 2783-86.

What is the value of the poultry kept in the United States? 2339.

Why is rotation of crops advantageous to the farmer? 2485.

How many carloads of agricultural machines are shipped from Chicago annually? 2411.

How many furrows can a gang plow turn at a time? 2278.

What preparations do the French make from soy beans? 262.

From what does buckwheat derive its name? 406.

Who was the first secretary of agriculture of the United States? 647.

What is ensilage? 962.

What are the great hay-producing states? 2787.

What is the Salt River Project? 1472.

What are squabs? Why are they especially inexpensive to raise? 2738.

Is the sweet potato a relative of the Irish potato? Is the same part of the plant eaten in each case? 2335.

Why was timothy grass so named? 2892.

Where were school gardens first established? 2574.

How does Burbank produce new species of plants? 421.

How many pounds of free nitrogen does a ton of clover take from the soil? 629.

What vegetable has been of the greatest use in preventing famine? 2335.

What are Boys and Girls Clubs? 363.

Why are beans especially valuable to the farmer? 262.

To what different uses is the cotton plant put? 720.

What are the three chief values of crop rotation? 2485.

When should fertilizer be applied to sandy soil? 2683.

Where were silos first built? 2649.

Where was sugar first made from beets? 274.

What countries produce the most sugar? 2786.

When and where was the first iron plow made? 2278.

How many harvesters are manufactured in the United States yearly? 2411.

What does the word *beet* come from? 274.

DAIRYING

How much milk is produced in the United States annually? 1847.

What is the foremost dairy country of Europe? 1986.

How much butter is produced in the United States annually and what is its average value? 432.

How much milk is required to make a gallon of cream? A pound of cheese? A pound of butter? 1846.

How is milk pasteurized? 1847.

How much milk is produced in the United States annually? 1847.

CEREAL CROPS

Can wheat be raised in Alaska? 51.

What are the leading countries of the world in the production of wheat? 3114.

In what countries is rice extensively raised? 2440.

What is the leading state for oat production? 2075.

What cereal furnishes the best straw for the making of bricks, mattresses, baskets, paper and hats? 972.

FRUIT GROWING

Which fruit is considered the most valuable and why? 124.

What are the five "peach states"? 2191.

What is meant by "processing" persimmons? 2220.

What is the pomato? 421.

Upon what Northern tree may the lemon be made to grow? 1207.

How many flowers will a single banana stalk produce? 233.

Can a boy learn to graft a tree? 1205.

Can he learn budding? 1205.

Can an apple cion be successfully grafted upon a plum or peach tree? 1205.

Can a pear cion be successfully grafted on an apple tree? 1205.

What is the best time for grafting? 1205.

How is grafting wax made? 1206.

What is inarching? 1206.

PESTS AND DISEASES

What disease frequently attacks rye? 2505.

What causes smut on certain grains, such as wheat and corn? 2671.

What is one of the worst grape vine pests? 2251.

How can the ravages of phylloxera be prevented? 2252.

What are the symptoms of anthrax? 114.

How may spavin be cured? 2715.

Why are smuts particularly difficult to eradicate? How should infected seeds be treated? 2671.

What is the phylloxera and why is it important that it should be recognized? 2251.

Why should barberry hedges not be grown near wheatfields? 243.

What is blight? How does it spread? How may it be checked? 320.

MISCELLANEOUS

How many stations does the United States life-saving service maintain? 1633.

Of what are life preservers made? 1633.

To which of the three great kingdoms, animal, vegetable or mineral, does the sea cucumber belong? 2594.

What is an albino? 60.

In what ancient countries did algebra first appear? 72.

Where is amber obtained? 88.

What nations of antiquity are known to have built aqueducts? 127.

Into what three subperiods is the primeval period of the human race divided? 132.

What great mathematician of antiquity invented a device for raising water? 133.

What are the motives of animal worship? 105.

What belief did the Egyptians entertain concerning the bull? 120.

How is hand ball played? 1267.

What were the Isthmian games? 1476.

How is the game of jackstraws played? 1488.

What game of the American Indians is now the national game of Canada? 1573.

What was the last great advance made in the science of arithmetic? 142.

What superstitious belief do sailors entertain concerning the albatross? 56.

What was the origin of All-Saints' Day? 80.

What is the basis of Chinese belief in ancestor worship? 96.

A SUMMER CAMP

BOY SCOUTS

The Boy Scout Movement is the outgrowth of efforts to organize means whereby the spare hour activities of boys can be so directed that the result will be the development of manly character. It is assumed that boyhood life is largely under the sway of impulses peculiar to youth which, if wisely directed, will make him "physically strong, mentally awake and morally straight," and thus "Be Prepared" for future citizenship and the pleasures and duties of mature life.

A New Method in Education

It is not the purpose of this organization to accomplish new results, but to accomplish in a new way objects for which many agencies have labored. The distinctive features of the new method are summed up in the term "Scoutcraft," which includes instruction in many practical subjects such as camp craft, wood craft, chivalry, patriotism, etc. All the underlying lessons in outdoor activities, games and team play, are not work, but pleasure for the boy. They assist nature in certain lines of development in a way that satisfies the impulses of youth.

Scoutcraft has indeed made a notable contribution to educational methods by insisting that the only effective way of learning a thing is to actually do it. Prominent educators heartily indorse this position and it is the accepted method in scout procedure. It is a practicable application on a large scale of the "climbing-hill" theory of education, already discussed in these pages, versus the "sugar-plum" theory.

The Founders of the Movement

No single individual is the founder of this movement, just as no great inven-

tion, no far-reaching discovery in science is the result of the work of one person. A number of earnest students, with intuition sufficient to grasp the meaning of the more intense study of boyhood life, laid the foundation on which the Boy Scout movement is built. Two of these early movements were founded in America—The Boy Pioneers, or the Sons of Daniel Boone, founded by Daniel Carter Beard; and the Woodcraft Boys, founded by Ernest Thompson Seton. These early workers were men of vision, possessed of intuitive knowledge of boyhood needs. They knew that hearts of youth, like flowers, unfold most naturally when in touch with Nature, where birds and flowers, flowing streams, murmuring forests, the blue of distant hills exert their subtle influence for good. And so they sought to get the boys out in the open as much as possible and train them in a knowledge of Nature.

The Winning Name

But these early movements lacked the magic of a compelling name, and like all preliminary organizations, were deficient in some helpful details and were not in full accord with the newer teachings of boyhood psychology. General Sir Robert Baden-Powell of England was the one who furnished the name "Boy Scouts," a truly magnetic name: one that fires the imagination of boys. Scouts are pioneers. Scouts in the old army days, scouting planes in modern days, scouting ships in the navy, guard against the approach of danger. In the Boer War, General Baden-Powell actually organized the boys of Mafeking into a band of army scouts that rendered excellent service in the famous defense of the town. It was quite natural that when he organized the boys of England for peaceful development he should call them Boy Scouts. He organized the first troop of Boy Scouts in 1907.

The Spread of Scouting

And that name makes such an appeal to boy-nature that it is superseding nearly all other names of boy organizations. As Boy Scouts, the movement has spread until fifty-seven countries, representing over ninety per cent of the population of the world, have adopted the Scout program, and in our country it is the accepted program for boy development. Scout troops dot every corner of the country. More than 400,000 Scouts from Maine to California, are doing their daily good turns. But it must be understood that this organization is in no sense military. Boy Scouts wherever found are scouts of peace, not of war, but they are none the less scouts, out on the scouting line, guarding against evils that beset boyhood life, and thus manhood life and national life as well.

Nationalizing the Movement

Forward movements in history are always mass movements. The leaders are individuals who some way catch and focus impulses that have long been developing. The first step being taken, helpers capable of modifying, enlarging, and pushing forward the movement, at once present themselves. It was so in the case of the Boy Scouts. It was at once seen that organizations that seek to help boys to a higher life by sympathetic coöperation with them in activities that appeal to boyhood instincts are up-lifting agencies of great potential good, and in a few years many different organizations were formed—all on this same general principle. When, in 1910, it was thought best to nationalize the movement in this country, thirty-seven different organizations sent representatives to the council called to meet at Washington to effect such a national organization.

The Purpose of the Boy Scouts

As a result of that conference a national council was organized consisting of a large number of experts in boy psychology and in various subjects of scoutcraft, including prominent business and professional men—all charged with perfecting an organization. This organization is called the Boy Scouts of America, and states in its articles of incorporation that:

"The purpose of this organization shall be to promote, through organization and coöperation with other agencies, the ability of boys to do things for themselves and others; to train them in scoutcraft, and to teach them patriotism, courage, self-reliance, and kindred virtues."

At present the national council consists of about 600 members, representing scout organizations throughout the United States. It meets annually to receive reports, consider questions of policy and elect officers.

The Executive Board

To carry out its purposes, the national council elects an executive board consisting of thirty members, one-third of whom are elected each year. This board meets monthly and has in charge the business of the organization. It maintains headquarters in New York and appoints an executive officer known as the Chief Scout Executive, and such other aids as seem desirable. These officers have charge of most of that national business and are stationed at national headquarters in New York City.

The National Scout Commissioner

Scouting depends for its success upon the volunteer scoutmasters and scout leaders. These men give the boys needed companionship, because they love boys and love America, and realize the need of their work, which they often do at a great personal sacrifice. The National head of these volunteer officers is the National Scout Commissioner, as Daniel Carter Beard, a pioneer in boys' work in America and active in the Boy Scouts of America.

Local Councils

The National organization is concerned with the nation-wide aspects of the movement and is made up of representatives from local councils, which are organized along the same lines as the national body and include in their membership men from all elements of community life. These councils have directly in charge scouting activities in a limited section—county, town or city. The entire movement being non-military, non-sectarian, and non-political, seeks the coöperation of leading citizens active in various organizations that are striving to help boys to a larger life.

The Local Scout Commissioner

The local council has as its active agent a scout commissioner, appointed at its request and on its approval by the national council. Much of the success of the scout movement in any community depends upon this officer. It is his duty to watch over the details of the work in his locality, to aid scoutmasters and encourage them in their work. In small communities he is locally in charge of the work. In larger communities he is the active head of the voluntary workers, giving a part of his time to scout work.

THE "HIKERS"

The Scout Executive

The more important local councils of the country—having a large volume of business to attend to—arrange for the services of a local scout executive. He devotes his entire time to carrying out the program for scouting outlined by the executive committee. His duties are defined by that committee and include being director of scout activities of the various

BOY SCOUTS RECEIVING A HEARTY HANDSHAKE FROM PRESIDENT HARDING

committees. To succeed he must be a man of vision.

The Scoutmasters

The officers of the organization in immediate charge of the boys are known as scoutmasters. There are thousands of these scattered throughout the United States; they form the backbone of the Boy Scout organization. A scoutmaster must be at least twenty-one years of age. The personal element is the important point to be considered on his selection. "What he is is of more importance than what he knows" about scout activities. These things he can learn. He must be a man of clean moral character, a natural born and safe leader of boys, one who from his heart seeks their good. Such a man will readily learn his duties and be able to help his boys in their various activities.

As leader of the troops, the Scoutmaster is responsible for its meetings, outings and general program. He supervises the work of patrol leaders and prepares the members of the troop to take their various scout examinations. No mere list of words can set forth the full measure of a successful scoutmaster's duties. He is the keyman to the whole scouting program. It is his task to bring to the front the best in his boys; to suppress the undesirable. In sympathetic comradeship he journeys with his boys through boyhood life, on boyhood planes of feeling, but by reason of wider experience and more mature understanding, he is able to direct their activities in ways that will help them in preparation for life work.

The Patrol Leaders

The boys under the care of a scoutmaster are called a troop, and these are divided into smaller groups of eight boys, known as patrols. These are the units of scout activity. Each patrol has its leader—one of its members—and an assistant leader. The patrol, for a reason soon to be considered, chooses a name such as the Bear Patrol, Eagle Patrol and so on, and adopts for its patrol design the name of the animal or bird whose name they bear, using it as a symbol on their flags.

The Needs of Boyhood Life

When we consider the great success of the scout movement, we realize that it must meet in some measure the needs of boyhood life. One of the defects of our modern educational method is that it has not sufficiently considered the needs of youth, because we have not studied the psychology of youth. We have tried to make children act after our modes of thought. We have failed to notice the hints that nature has given us.

According to one school of psychologists, the child in his mental and cultural development passes rapidly through the stages of culture—subconsciously, of course—from that of primitive people to that of civilization, and since in our active life we act out our subconscious impulses, it follows that boys during the years of adolescence turn with instinctive longing to the freer life of early times.

Boyhood Impulses

It is not necessary for our purposes to discuss this theory, but the underlying truth seems to be that there is something in the boy's subconscious nature that responds to the "Call of the Wild." Out-of-door life appeals to him. For some purpose, and in some mysterious way, nature has implanted in him instincts that incline him to the out of doors, to a life close to nature. With the passage of years, the most of us grow away from these impulses. We forget the feelings that impelled us to action when we were boys. In short, we lose sympathy with boyhood's point of view. The activities of the Boy Scout movement are of such a nature that they appeal to the instincts of youth, and this explains, in a measure, the success of the movement. For in their hikes, camping experiences, in tracking and stalking, in woodcraft and nature studies, the boy is giving vent to impulses active in the freer life of long ago. It is nature's way of reviewing in the experiences of boyhood

the race lesson of earlier ages and stamping them on his nature and fitting him for the more artificial life of modern times. The activities of the scout movement reinforce the work of nature. This is not for the purpose of giving the boys a good time, but to emphasize underlying lessons. It is education in the guise of sport. And this is the keynote of the entire scout movement and is continued until the blossom of scout life gives place to the solid fruit of accomplishment and the scout becomes the efficient citizen.

Requirements for Admission, and Progress in the Organization

A study of the tests that candidates who seek admission into the organization must satisfactorily stand, and of the examination he must pass before being advanced to the ranks of second and first class scouts shows how fully the instinctive needs of boyhood life are met.

Scoutcraft works with nature to shape and develop patriotism and encourage in boys habits of observation and ability to care for themselves in the experiences of life. There are many books in public schools and libraries, and courses of instruction that aim to teach these same lessons, but the wonderful success of scouting is largely due to the fact that it adopts nature's method of work.

The Tenderfoot Scout

To become a tenderfoot, which might be called the apprenticeship stage of scouting, a boy must be at least twelve years of age and he must have successfully passed certain simple tests which are the foundation on which the edifice of Scoutcraft rests. These tests are three in number:

1. He must know the scout law, motto, sign, salute, and significance of the badge.

2. He must know the composition and history of the national flag and the customary forms of respect due to it.

3. He must know how to tie the following knots: Square or reef, sheet

LEARNING THE USEFUL KNOTS. "AN OUTDOOR SCHOOL"

bend, bowline, fisherman's, sheepshank, slip, clovehitch, timberhitch, and two half hitches.

The Scout Law

The scout law is a chart, in accordance with which the Boy Scout agrees to try to conform his actions through life. It sets forth that a scout is trustworthy, loyal, helpful, friendly, courteous, kind, obedient, cheerful, thrifty, brave, clean, and reverent. These are simply the headings, each of which is amplified in the full exposition of the law which the scout is expected to know. To illustrate, take the heading, "helpful": The full exposition is, "He must be prepared at any time to save life, help injured persons, and share the home duties. He must do at least one good turn to somebody every day."

Knowing the Law

Scout officers feel their responsibility to boys who join the movement and their aim is to see that this knowledge of the scout law extends far beyond the ability to glibly repeat it. An effort is made to so impress it on their minds that it becomes a part of their very being—coloring their life's actions. When the tenderfoot takes the Scout's oath, he solemnly promises to do his best to keep the scout's law. The badge which he wears is a silent reminder of his promise to be faithful. The scout's motto bids him "Be Prepared" among other things to keep the law.

All this constitutes a great forward step in the boy's life. He is in company with like-minded boys. They are not a solemn group of boys either. They are chums in outdoor life; they delight in activities that only wide-awake boys with a plentiful supply of red blood can enjoy.

On reflection it will be seen that the scout law is the foundation on which character is built, not on shifting sand, but on the solid rock of worth. The entire movement is, of course, non-sectarian, and on this program all right-minded men of all creeds can and do unite. Scouting has the warm approval of all denominations. Catholics and Protestants, Jews and gentiles give it the hand of fellowship. All organizations working for boy betterment wish it success.

The American Flag

A boy to qualify for admission into the ranks of Boy Scouts must be informed concerning the origin and history of our national flag and know the forms of respect that should be shown it. We do not realize the importance of this test. The boys of today are the voters, lawmakers and executives of tomorrow. Many of them have foreign-born parents. We want them all to become one hundred per cent Americans. One of the first steps in this direction is to acquaint them fully with Old Glory. It is the symbol of our country. It stands for American ideals. It flies from the mast heads of our men of war; it goes with our soldiers to battle; it waved over blood-stained fields of France. To insist on proper respect being shown to the flag is to nourish and strengthen the natural patriotism of boys. As a nation we are careless in this respect. How many of us know or make a custom of paying this token of respect:

"When the national colors are passing in parade or review, the spectators should, if walking, halt, and if sitting, rise and stand at attention and uncover."

There is not a twelve-year-old Boy Scout in the United States who does not know this rule. This common knowledge is one of the means of fusing into one mass of liberty-loving, patriotic Americans—willing to defend the flag with their lives if necessary—the thousands of children of diverse nationalities now thronging to our shores.

The Scout Is Loyal

Loyalty is one of the planks in the scout law that the scout promises to obey. This does not mean simply loyalty to his fellow scouts, but loyalty to his home—as son and brother—loyalty to the community seeking the interests of all, loyalty to his state and nation. Citizenship building is one of the emphasized aims

of the movement. The need of our country is not only for men of character, but for men of stanch loyalty to American institutions. Every form of scout activity is calculated to develop patriotic law-abiding citizenship.

Knot Tying

To tie a good knot is not a useless accomplishment. A rope is of use in many ways: in order to use it effectively, we must know how to tie a good knot. Thousands of people, risking their lives in different vocations have lost them because of poorly tied knots. If a scout is to live up to his motto to "Be Prepared" for all emergencies, he must know how to tie serviceable knots. Besides all this there is something about knot tying that harks back to the older life of the race and strikes a long forgotten chord in the inner life of boyhood.

Foundation of Scouting

We have now, in outline, considered the foundation on which the Scout movement rests. In review, we note that the would-be tenderfoot must pass a satisfactory examination in simple tests before he is admitted to the ranks of Boy Scouts; he is taught to understand the laws of conduct to which his life should conform; he has taken an important lesson in patriotism, and the first elementary lesson, in a long series of lessons, designed to train his powers of attention and develop manual dexterity to the end that he may "Be Prepared" to render help in unforeseen emergencies.

The Scout's Oath

When the applicant has passed this examination, a simple ceremony completes his admission to the ranks of the Boy Scouts as a tenderfoot. He promises as follows:

"On my honor I will do my best—

1. To do my duty to God and my country, and to obey the Scout Law;

2. To help the people at all times;

3. To keep myself physically strong, mentally awake, and morally straight.

As in the case of the Scout Law, the efforts of the scoutmasters is to impress on the boy the deep meaning of the oath he has taken. In talking it over with them they take it apart, phrase by phrase, and explain its meaning.

All this constitutes the foundation on which Scoutcraft is built. Nature slowly worked through thousands of years to develop in primitive man the qualities of manly character. The boys of today rapidly pass through that stage. Scoutcraft reinforces this work of nature by journeying with the boys through boyhood life, and directing games and activities that re-enact the lessons of primitive times. Once more a great lesson is learned as to the advantage gained by working with nature.

A SCOUT LEARNS TO USE HIS HANDS

Scouts of the Second Stage

The tenderfoot must serve an apprenticeship of thirty days and then show by an examination that he is prepared to take the second step in Scouting. Thirty busy days; but they have not been lacking in interest. These are the require-

SCHAEFER METHOD OF ARTIFICIAL RESPIRATION

ments for admission to the ranks of Scouts of the second class:

1. At least one month's service as a tenderfoot.

2. Elementary first aid and bandaging; know the general directions for first aid for injuries; know treatment for fainting, shock, fractures, bruises, sprains, injuries in which the skin is broken, burns and scalds; demonstrate how to carry injured; use of the triangular and roller bandages and tourniquet.

3. Elementary signaling; know the alphabet of the semaphore or the General Service (International Morse) Code.

4. Track half a mile in twenty-five minutes, or, if in town, describe satisfactorily the contents of one store window out of four observed for one minute each.

5. Go a mile in twelve minutes at scout's pace—about fifty steps running and fifty walking, alternately.

6. Use properly knife or hatchet.

7. Prove ability to build a fire in the open, using not more than two matches.

8. Cook a quarter of a pound of meat and two potatoes in the open without any cooking utensils.

9. Earn and deposit at least one dollar in a public bank. (Liberty Loan subscriptions and War Savings Certificates are accepted.)

10. Know the sixteen principal points of the compass.

The Basic Elements

The tenderfoot tests were said to be the foundation on which Scoutcraft was built. The requirements for scouts of

LEARNING FIRST AID BY PRACTICE "DOING"

the second degree may be said to advance the basic aims of scoutcraft. They are expected to cultivate habits of observation, resourcefulness, thrift, and ability to adapt themselves to conditions. According to the scout's law he must be ready to help others. Notice how that general purpose is advanced by the second test just given: how to help in the case of accidents.

Notice that all of these tests serve practical purposes in training for life. Take for instance the third test, signalling. It calls for quick and correct observation and memory. It appeals to boy nature because it gives them some semi-secret means of communication. Besides it appeals to the instincts of youth. It is the same feeling that once set signal fires blazing on distant hills and flaming arrows at night and columns of smoke by day flashed their mysterious messages. It is knowledge that appeals to boy nature.

The Tracking or Window Test

There are splendid means for developing the faculties of observation. We go through life seeing but a fraction of the beauties of nature around us. We do not notice the wayside flowers, the charms of forest glens, the floating clouds by day, the stars by night; in short, we miss much of beauty and interest because we have not learned how to observe. Here is a test that develops this ability and here again note the appeal to boy-nature. It is the same life that once demanded the keenest powers of observation to follow the trail of animals or enemies. It is at once apparent why this interests boys.

And so you could consider any one of these tests and find that they develop powers that make up the keen, progressive, efficient citizen of mature years, and all—except it might be number nine—touch some chord in the boy's hidden life which sets his nerves tingling. We who have left youthful years behind cannot understand the charm such activities have for boys. They pass that way but once; let us direct their course.

Comparison With Tenderfoot Stage

Comparison of the second stage of scoutcraft with the requirements for the tenderfoot stage is interesting and illu-

minating. The one—the tenderfoot—is the foundation upon which scouting rests; the other is the framework of scouting. But the scout law and the scout oath, the significance of the badge, the monitions of the motto, are kept constantly in mind in both stages. The Boy Scout is living the law: he is quick to do his daily good turn. The second stage simply adds tests to the tenderfoot requirements that develop other parts of the boy's nature and enable him to better express the law. In mathematics the farther one goes the more he applies the multiplication table; every advance in scoutcraft-learning calls for application of the scout law.

Requirements for First Class Scout

After sixty days' service as a second class scout, a scout may, upon passing the following tests satisfactorily, be enrolled as a first class scout, and entitled to wear the first class badge of the Boy Scout of America.

1. Swim fifty yards.
2. Earn and deposit at least two dollars in a public bank.
3. Send and receive a message by semaphore, including conventional signs, thirty letters per minute, or by the general Service Code (International Morse) sixteen letters per minute, including conventional signs.
4. Make a round trip alone (or with another scout) to a point at least seven miles away (fourteen miles in all) going on foot, or rowing boat, and write a satisfactory account of the trip and things observed.
5. Advanced first aid; know the methods of panic prevention; what to do

MAKING FIRE THE INDIAN WAY

in case of fire, ice, electric and gas accidents; how to help in case of runaway horse, mad dog, or snake bite; treatment for dislocations, unconsciousness, poisoning, fainting, apoplexy, sunstroke, heat exhaustion and freezing; know treatment for sunburn, ivy poisoning, bites and stings, nosebleed, earache, toothache, inflammation or grit in eye, cramp or stomach ache, and chills; demonstrate artificial respiration.

6. Prepare and cook satisfactorily, in the open, using camp cooking utensils, two of the following articles, as may be directed: Eggs, bacon, hunter's stew, fish, fowl, game, pancakes, hoecake, biscuit, hardtack or a "twist" baked on a stick; explain to another boy the methods followed.
7. Read a map correctly, and draw, from field notes made on the spot, an intelligible rough sketch map, indicating by their proper marks important buildings, roads, trolley lines, main landmarks, principal elevations, etc. Point out a compass direction without the help of the compass.
8. Use properly an axe for felling or trimming light timber; or produce an article of carpentry, cabinet-making, or metal work made by himself. Explain the method followed.
9. Judge distance, size, number, height, and weight within 25 per cent.
10. Describe fully from observation ten species of trees or plants, including poison ivy, by their bark, leaves, flowers, fruit or scent; or six species of wild birds by their plumage, notes, tracks, or habits; or six species of native wild animals by their form, color, call, tracks, or habits; find the North Star, and name and describe at least three constellations of stars.
11. Furnish satisfactory evidence that he has put into practice in his daily life the principles of the Scout Oath and Law.
12. Enlist a boy, trained by himself in the requirements of a tenderfoot.

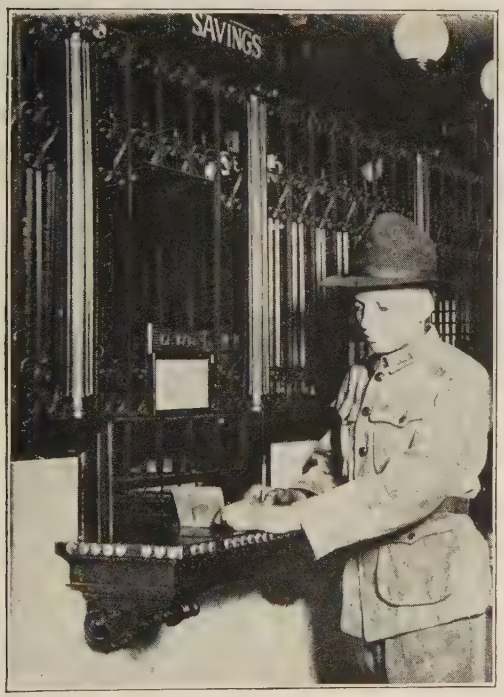
COOKING DINNER

A LEAFY RETREAT

Analysis of the Tests

Analysis of these tests shows that they overlap, expand, and complete the tests

already mastered,—manual dexterity, thrift, ability to render help, resourcefulness, observation, nature study, and making effective the obligation of living the scout law and practically applying it by teaching others. We must also notice the nature of the tests,—woodcraft, campcraft, wandering in woods and fields,—outdoor life in keeping with boyhood instincts. In such development one



A SCOUT LEARNS TO SAVE AS WELL AS TO EARN

can readily find the secret of the great success that has accompanied this movement. It seizes on activities that appeal to the instincts of youth; it directs them, so that worth while lessons result. It is not a theory, for scouting is a going concern; it is a department of education that is enriching the lives of thousands of boys. As yet the full corn in the ear has not appeared; the crest of the movement is yet in the future.

The Hike

Under the general name of hiking is included a great variety of out-door scouting trips. Originally a hike meant a long trip on foot. It has now come to mean all sorts of trips into the open, even though little or no walking be done. The purpose is to make the scout self-reliant, observant, and efficient in the open, and bring him into close contact with other boys. And hikes are enjoyable occasions for him. He delights in adventures in the woods, in exploring caves, in climbing hills, in wandering through and discovering unknown territory.

Hikes are of many different kinds, such as the tracking and trailing hike; the good-turn hike, when the scouts, like knights of old, seek out a chance to do some good turn; the exploration hike on which occasion the scouts seek out new scenes of beauty and interest; the overnight hike; the week-end hike, and others. But however designated the general nature of hikes is the same in all cases. The call of Nature is the incentive,—the same instinct that in an earlier stage of culture sent knights travelling in search of adventure, started a Columbus westward on the uncharted Atlantic, set the pioneer on his travels, and still sends the explorer in search of the poles. Who that is older-grown cannot recall the same instinctive longings in his own boyhood days? Scouting seizes on this instinctive wish of boyhood and makes it serve a deeper purpose.

Camping

A study of the various tests that scouts have to master in their advance through the grades of scoutcraft shows that necessary knowledge can best be gained in camp, where the scouts meet for drill and instruction. These are enjoyable occasions, and are regarded as so important that it is considered necessary for the scouts to spend at least one week each summer in training camp. The site selected for a camp should be one with plenty of woodland for shade, wind

break, nature study and fuel; a plot of level ground for assembly and games; ample supply of pure water for drinking; and a body of water suitable for swimming, boating, and fishing, or for skating and ice games in winter. It should be located far enough away from home to give the boys a feeling of adventure. In camp the boys generally sleep in tents large enough to provide for a patrol of eight boys, using a permanent house or shelter for dining hall and camp headquarters.

The Daily Program

The purpose of camping is for training in scoutcraft. Regular schedules for the day's work are arranged just as in a summer school, but of course they have distinctive features, necessitated by the general nature of scoutcraft. The following may be considered a sample program:

A. M.

6:00 Reveille, flag salute, wake-up drill, morning wash-up.
7:00 Breakfast, tent clean-up, air blankets.
8:00 Assembly, policing the grounds, sanitary and health inspection.
9:00 Instruction in scoutcraft.
11:00 Swimming and life saving drill.
12:00 Dinner—tent inspection and pennant award.

P. M.

12:45 Quiet hour, letter writing.
2:00 Scout games, hikes, stalking, exploring trip.
4:00 Swimming and water sports.
6:00 Assembly, parade and evening colors.
6:20 Supper.
7:30 Campfire, stories, stunts.
8:50 Tattoo—call to quarters.
9:00 Taps—all lights out.

The Camp Fire

The evening campfire is an especially important part of the day's work. It has in the scout program much of the significance that attended the council fire of ancient tribal times. The scouts

SPEECH WITHOUT WORDS

gather around the campfire to sing their songs, to listen to thrilling tales, to discuss scout problems, to talk on the scout law, to listen to the impersonal recital of good turns and to suggestions from the scoutmaster. This is the hour that impresses the lessons of scoutcraft on the heart. The scout law and scout brotherhood should mean more to the boy scout because of the hours spent round the campfire in comradeship with his brother-scouts. He goes back to his daily life with clearer ideals and higher resolves. He has taken a step forward in scouting.

The Movement in General

Education is generally understood to mean the development of the mental faculties, while athletic exercises are for the purpose of developing the physical nature. Scoutcraft may be said to aim at developing the higher and finer parts of the boy's nature by teaching him to know and live the scout law. To accomplish

OBSERVATION WORK

its purpose it guides and directs the universal and elemental instincts of boyhood. It recognizes that, subconsciously, the boy is moved by impulses—peculiar to an earlier stage of race development—and utilizes these instincts and impulses to impress higher lessons on him. All this is education of the greatest worth.

The Future of Scouting

Scouting has experienced a wonderful development. Already the majority of the nations of the world understand, at least in a general way, the elements of scoutcraft. Let us picture to ourselves the possibilities for good should the method and aim of scouting become universally known and accepted. Let us suppose that the boys of all nations were to receive the benefits of this education as generally as they now receive the benefits of ordinary school education. It is reasonable to conclude that a higher civilization than that we now enjoy would speedily result, and that the entire world would move forward to planes of culture as superior to that of the present, as the present now surpasses the culture of tribal times.

P. S. Anyone wishing to organize a Scout movement, or to ask any questions pertaining to it, may write to the Source Research Bureau.

AN EARLY MORNING HIKE

CAMP FIRE GIRLS

"Camp Fire Girls" is the name of a society whose object is to furnish a program for and maintain general supervision over the recreational activities of girls joining the organization. The aim is to provide a program that shall satisfy the fraternal instincts of the members and their innate love of dramatic form and ritual, and tend to the formation of habits that contribute to the joys of every-day life. These habits are concisely summed up in the law of the camp fire, which every girl admitted to the society promises to obey. The seven headings of this law are: Seek beauty, give service, pursue knowledge, be trustworthy, hold onto health, glorify work, and be happy.

The Name

There is a beautiful significance in the name of the society. Our far-away ancestors reverenced fire as the symbol of the house god. The home fire was not allowed to become extinct. When a new home was formed, a portion of the old home fire was carried, with much ceremony, to the new location wherewith to start a new home fire. So by a natural development, fire came to be a general symbol for the home.

Since the camp fire is based on the home, since it is designed to enrich and bring to a more complete development the highest instincts of girlhood—those that have to do with home-making—it is eminently proper that the name of the organization, as a whole, and the names of the different ranks to which the members of the society may attain, should either have the word, fire, as a component part of the name, or contain some allusion to fire,—and so we have "Camp Fire Girls"—a comprehensive and beautifully symbolic name—wood gatherers, fire makers and torch bearers.

Origin of Movement

Dr. Luther H. Gulick and his wife were the pioneers in the movement. In their private camp at Sebago Lake, Me., they marked out the beginning of what later became, with slight modifications, the ritual and form of the Camp Fire Girls. The name of their camp, Wohelo (the first two letters of the three words, work, health and love) became the watchword of the new organization. Their first efforts were simply to work out a program of activities that would meet the needs of their own daughters and their girl friends. From this modest be-

ginning has developed the nation-wide organization as it exists today with its many thousand members.

Organization of the Movement

Preliminary work was done in 1911, but the organization was completed and headquarters opened in 1912. At that time the Boy Scout movement had been fully organized and had begun its great work for boys. A number of eminent workers, acquainted with childhood needs, and who knew that the adolescent years were the plastic period of life—when habits for good or ill are easily formed—joined with Dr. Gulick and perfected the organization of the Camp Fire Girls, to do for the girls of our country what the Boy Scout movement was doing for the boys. But there is no connection between these two movements, each has its distinctive work.

Necessity of a National Organization

It was necessary to perfect a national organization so that, speaking generally, the program of activities may be the same wherever camp fires are organized. The program, however, is very elastic and varies between wide limits so as to meet the differing needs of different communities and the requirements of the various social organizations from which the members of the different camp-fires are drawn. For instance a camp-fire organized in connection with a church will select a program differing in minor details from a camp-fire organized in connection with a school.

CAMP FIRE GIRLS LEARN TEAMWORK

Details of Organizing

But necessarily the general outline, the framework, so to speak, remains the same, and the objects sought to be gained are everywhere the same. To accomplish the broad general aims, to direct the movement as a whole and give vitality to it, a national organization is necessary. Accordingly, we have a Board of Electors, of which all guardians of camp-fires, in good standing, are members, as well as a number of prominent and well known citizens; necessary officers—the president of the United States is always honorary president; and ex-presidents are honorary vice-presidents; a board of directors consisting of well known public citizens; an educational committee, and a national advisory council, of which the wife of the president of the United States is chairman.

Seek Beauty

The activities of the society as a whole are intended to fit its members to express in their life the law of the camp-fire. The first plank or heading of the law, is "seek beauty." In furtherance of this, the girls are encouraged to do craft work, to make their own possessions as attractive as possible. The program recognizes the need and desire of women to look as well as they can, and it is designed to create habits in girls of dressing neatly and attractively. This monition is constantly impressed on the members: Seek for the beautiful in your surroundings and create beauty where it is not. This is simply following nature that lavishes beauty on every hand, and girls are more responsive to its appeal than boys.

Give Service

Give Service, the second heading of the law, is the slogan of the movement.

ROLLING BLANKETS

Girls win honors for ability to render first aid in case of accidents, or to serve as nurse when the need arises; they learn to be of real help at home—cooking, sewing, and every detail of home work. Nor is such help confined to the home. We read of camp-fire girls going into hospitals and wards, or of carrying flowers and dainties to the older invalids in the town, or of taking shut-in children to the parks to put a bit of sunshine into their lives. In some places they have converted unsightly vacant lots and dumping places into public parks. In these and many ways camp-fire girls learn the joy of service.

RELIEVING MOTHER

Pursue Knowledge

The entire program of camp-fire activities constitutes an educational movement of great worth. This is a surprise to many who think of camp-fire as an attempt to work over Indian customs to suit modern needs. It is, on the contrary, practical education along seven points that represent broadly significant things that have always been and always will be important in the lives of girls—the home, health, outdoor life, citizenship, the making of beautiful objects with the hands, a knowledge of nature and how to make their own way in the world.

This is accomplished through the system of bestowing honors; that is, of recognizing ability to practically do things, not for theoretical efficiency. These honors are grouped into seven crafts: Home-craft, Health-craft, Camp-craft, Business-craft, Citizenship or Patriotism. Honor beads are awarded for doing well tasks connected with these crafts. The beads are of different colors, one for each craft, symbolical of that craft. For instance, Home-craft honors are denoted by orange beads (orange for flame); Camp-craft, brown (brown for the woods), etc. Ability to do these tasks fit the girl for home and life duties.

The Honor System

There are hundreds of these tasks, covering all womanly activities. The idea is for the girls to learn by doing, and when they have done well to recognize this ability. The work of the home if it is only washing dishes or making beds, is dignified and made interesting because ability is recognized. The standing or grading of the girls is at once apparent to other members of the society by the honor beads worn. All this constitutes a system of education that fits the girl for womanly activity through life. It is a realization of the third plank or heading of the camp law.

Holding Onto Health

Camp-fire realizes that a beautiful life demands for its fruitage physical health. It recognizes the duty of good health, believing that it is largely within the power of the individual by controlling the thoughts, appetites and passions, and proper care of the body. Cleanliness, outdoor exercise, plenty of sleep, and no eating between meals are habits upon which the camp-fire program insists. The activities of camp-fire, cultivating cheerfulness as a duty, centering the thoughts on cheerful, wholesome topics furthers the course of health. A camp-fire girl has no time to indulge in morbid, unwholesome, pessimistic thoughts that invite ill health. She is busy making beautiful things, rendering some useful service, pursuing knowledge in some pleasant way. In health-craft more than fifty honors are listed and any girl who is dilligent in this craft lays the foundation for health. It is scarcely necessary to call attention to the extreme importance of this plank in the law of the camp-fire. Women are now to take their full share in the responsibilities of government. Good health is a national asset.

Symbolism

The camp-fire program makes much of symbolism. We have noticed symbolism in the name of the society and in the names of the different ranks, and in the color of the honor beads. Primitive people make more of symbolism than people more advanced. Especially is this true of names. We cannot enlarge on this subject but recall the extensive use of symbolism among our Indian tribes. Symbolism enriches our concepts or thoughts of things. It may express a thought, an aspiration, or an ideal. It is the natural language of poetry. The camp-fire members make extensive use of Indian symbolism, expanded and beautified, not because they are playing Indians, but because the use of symbols appeals to the instincts of youth before our habits of thought and action set to the more precise customs of mature life.

Each girl, as she joins the camp-fire, selects a name for herself that expresses some ambition or ideal, like "Minnetoska," meaning happy daughter, signifying that the one chosing it intends to be happy in her work. By this name the members are addressed in ceremonial meet-

DOING A "GOOD TURN"

LEARNING HOME DUTIES

ings. Then the new member designs or uses a symbol which has a reference to her ideal. For instance, Minnetoska might choose as her symbol the flower, black-eyed Susan, because the yellow of its petals stands for sunshine, which she desires to create in the lives of all about her. Then she makes for herself a ceremonial gown. She weaves her deeds, her desires, her dreams in more symbols on her gown. To those who have eyes to see the gown is an index of the wearer's character expressed in the language of symbolism, and is worn only on ceremonial occasions.

Camp Fire

A camp-fire is the unit of organization. It consists of at least six members and not more than twenty. Each camp-fire has at its head a guardian, who must be at least eighteen years of age. She receives her appointment and authorization as guardian from the National Board of Directors. She must be personally fitted for her position, able to take the girls into her confidence about little things, often about things of consequence. She is one of the girls and has her ceremonial gown, her symbol, and special name. She presides at the meetings of the camp fire, directs the activities, goes with the girls into camps, and has them in her charge. All guardians in good standing are members of the Board of Electors. Where a number of camp-fires have been started in a locality, the guardians form an association that meets for mutual counsel.

Camping

It is considered of the utmost importance that Camp Fire Girls should spend a week or more in camp, in a carefully selected place, some distance away from home, with fellow members, under the watchful care of a guardian. A camp is in effect a summer school. The object is to impress on the members the deeper meaning of the program. The experiences there gained cannot be phrased in words. Subconsciously the meaning of life is opening before them. Unknown even to themselves ideals are taking form destined to influence her whole life.

How to Become a Camp-Fire Girl

A girl must be at least twelve years old before she can become a member, and in addition she must fulfill certain requirements. She must know the purpose and ideals of the organization; she must be able to state the name of the President of the United States, the Governor of the state, and the Mayor or highest local civic official. She must be able to tell how many stars and how many stripes are in the United States flag and explain its symbolism.

These are the principal requirements. Then she makes application to a council fire and promises to follow—as well as she can—the law of the camp-fire. A simple ceremony completes her initiation as a probationary member. She serves as such for two months and then if she has met a few simple conditions she can attain the first rank in the camp-fire organization.

Wood Gatherers

Wood gatherer is the first rank a Camp Fire Girl may attain. Winning that rank shows that she is sincere in her ideals and is striving to live up to the law, it also shows that she has made a beginning in mastering craft work. One of the requirements is that she shall learn the Wood Gatherer's Desire, which is as follows: "As fagots are brought from the forest firmly held by the sinews that bind them, I will cleave to my Camp Fire Sisters wherever, whenever I find them."

"I will strive to grow strong like the pine tree,
To be pure is my deepest desire;
To be true to the truth that is in me
And follow the law of the Fire."

STUDYING NATURE

Advance in Craft Work

She must, in addition during the time of probation, have won at least fourteen elective honors, of which three are chosen from home craft, three from citizenship craft, or patriotism, and three from nature craft. These honors indicate advance in the formation of habits that will be helpful through life. The differently colored beads that she wears impress on her the fact that each task, great or small, is a part of life. To illustrate the honors, such as, make two kinds of bread and two kinds of cake; or name the author and give an account of how the "Star Spangled Banner" was written; or identify and describe twenty wild birds.

Having won the honors she is entitled

WEAVING THE CEREMONIAL GOWN

to wear beads the colors of which are symbolical of the crafts. As a Wood Gatherer she choses a symbol and makes a head band with the symbol as a design, and is entitled to wear a symbolical gown. Notice the significance of the name, Wood Gatherer. She is forming habits (gathering wood) that will enable her to make a home (fire) later on.

Fire Maker

This is the second rank in camp fire. The guardian determines when the girl is prepared to be advanced. The candidate is required to win twenty elective honors but that in itself is not sufficient. The guardian must look behind the honors and judge from the earnestness of purpose, the heart-fitness of the candidate. In some cases only a few weeks may elapse before she is fitted to become a fire-maker; let us say before her character has become so shaped, her habits so formed, her aim in life so set that she is fitted for advancement.

Requirements for the Rank of Fire Maker

The requirements for admission to the rank of Fire-maker show that the candidate has made advance in various crafts that will enable her to exemplify better the law of the Camp-fire. She shows that she can cook and serve a meal, that she can mend a pair of stockings or a knitted under-garment, or hem some useful article. She shows ability to serve by demonstrating in pantomime what to do in case of clothing on fire, how to help in case a person who cannot swim is thrown in deep water, or a person fainting. She knows the principles of elementary ban-

A LESSON IN FIRST AID

daging. In civics she has committed to memory a good poem or a song, she can sing all the words of the "Star Spangled Banner," she has thoroughly acquainted herself with the life of some eminent woman.

What She Has Learned About Herself

She has learned what a girl of her age should know about herself, those intimate things which careful mothers tell their daughters about the personal life of women. She has acquired a knowledge of personal hygiene. She knows the normal requirements of sleep and out-of-door exercises for her age, she knows how to dress for different states of the weather; she knows the care that should be bestowed on eyes and teeth, on hair and feet. She has slept with open windows or out of doors for at least a month. She knows the habits that will secure regularity of bodily functions necessary for health. In addition, she must have won twenty elective honors. These honors are scattered through all of the crafts, at least one from each, and with the exception of home craft, not more than five can be taken from any one group.

This shows the all-around character, the practical completeness of the camp-fire education. How many women of mature years could meet off-hand the requirements that candidates for the Fire Makers' rank are obliged to meet? It is a splendid thing that many thousand girls in the United States are working to master these requirements.

Torch Bearers

As the name implies, one who seeks to become a Torch Bearer must demonstrate qualities of leadership, she must be fitted to bear the torch, to lead the way for others to follow. She must be at least fifteen years old. She must be loyal and dependable as well as livable and likable. She must be a good fellow-worker. She must present twenty honors from the list of elective honors in addition to those previously won.

There are two principal ways in which she demonstrates her fitness. She may qualify as a guide. That is, she must have led three girls for not less than

three months in some camp-fire activity, such as hiking, nature study, etc., or she may become a craftsman; that is, have developed expert skill in some one or more of the seven crafts. Let us simply add that if she desires to be an expert in home craft, she must demonstrate fitness in every detail of housekeeping.

Conclusion

We have now presented with some fulness of detail an outline of the Camp Fire Girl Movement. All can see in this movement a scheme of education tending to awaken in the consciousness of girls ideals of thought and action that shall enrich their entire life, that shall give them physical health, make them realize the joy of service, glorify the work of home, enable them to beautify their surroundings and by the key of symbolism open the door of understanding so that they shall see running through all of nature's work evidence that Infinite Intelligence rules all things, that life itself is but a school of experience preparatory to a wider life. The future only can disclose the full measure of worth to the girls of today—to the home of tomorrow—of the Camp Fire Girls.

THE REST HOUR

THE CAMP FIRE

CHILDHOOD ESSENTIALS—FRESH AIR, SUNSHINE, AND FOOD

PARENT-TEACHER ASSOCIATION

This Association is the agency perfected by the National Congress of Mothers to widen the scope of school activity and make it a more effective force in the community. The Congress itself is an incorporated society, whose primary object is to improve the conditions of child life. Its work subdivides into many branches of child betterment work, which it is not necessary for our purpose to discuss. It is otherwise when we come to consider its work in the field of education.

All far-reaching schemes of reform utilize existing agencies, changing them to serve more advanced purposes. The Mother's Congress recognizes that the two great factors in the education of children are the home and the school; and that the active agents are parents and teachers respectively. It is self-evident if the home and the school can be united in sympathetic coöperation that in itself would be a forward step in education, and this union of purpose would enlarge the work of the school for its activities would widen to include the entire community. The method adopted by the Congress to serve such a purpose is the Parent-Teacher Association.

This object was stated in the constitution of the Congress at its first meeting in 1897. In 1907 the department of the Parent-Teacher Association was organized to further this object. In 1913 the Bureau of Education, recognizing the great possibilities of this method, organized a department to assist in making the work of the association more efficient and by giving it a degree of official recog-

nition to encourage the growth of the movement. In 1915 this department of the work of the Congress had become so important that the official name of the Congress was changed to read "National Congress of Mothers and Parent-Teacher Associations."

This new department in school methods has accomplished so much good wherever it has been adopted and supported, its possibilities are so promising—that other governments have made it a subject of investigation. Germany, quick to adopt anything helpful in education, has now officially adopted it—in its essential respects—as part of their educational methods. In our own country our most prominent educators regard it as a great forward-step in school methods. All teachers who aspire to leadership in their profession, parents who have children to be educated, all who would increase the sum total of happiness in their community, should become familiar with the work of the Parent-Teacher Association, encourage the formation of one in their community and work to make it a success.

How to Organize a Parent-Teacher Association

It is necessary for some one to take the lead and arrange for a preliminary meeting. The principal of the schools should take an active part in this preliminary work, but this should not deter others doing what they can to make it a success. As it is a community movement all residing in the community, whether parents or teachers, married or single, should be urged to attend. All who recognize that they have a part in making community life more ample in volume, richer in content, abounding in neighborly love, confidence, and willing service should do their part. All who feel that it is the duty of society to provide whatever equipment experience has shown is helpful in advancing education that will fit children to win their battle of life should assist.

The organization is so simple that it can be easily effected in one evening. Someone explains the purposes of the association and shows the great possibilities for good to the community. He shows that it is calculated to bring them together in conference to consider subjects that interest them as neighbors united in a common cause, that it is to benefit community life and especially is it to benefit the schools which their children are attending. The hearts of all present must respond to these appeals.

Affiliation With State and National Organizations

There is nothing to prevent any community organizing its own association, giving it any name wished and working along any line they wish but many advantages are gained by affiliating with the state and national organization. Mere association with the larger group results in inspiration for work and there is the consciousness of strength in feeling that you are part of a nation-wide organization and the way is opened for help from experienced leaders and from the Bureau of Education.

The Program Committee

The Program Committee is easily the most important one of the association. It is its duty to arrange the topics to be discussed in the meeting, and leaders in the discussion are to be selected.

It should be kept in mind by this committee that they are not laying out a lecture course. They are not seeking to instruct their members in literature, science nor art. All these subjects are excellent, but they are seeking information that concerns every-day life in their homes, in their schools and in the community. It is not a debating society that they have organized. It is not an old-fashioned lyceum. It cannot be called by any other name than a Parent-Teacher Association; the information sought is specialized information. How shall we widen the work of our school so that it shall include in one comprehensive scheme the teachers, the parents, the en-

A SANITARY DRINKING FOUNTAIN

tire community uniting their energies for one purpose—to better child-life.

Activities Appropriate to the Purpose of the Association

Certain general principles should be clearly understood as to the appropriate activities of the Association which will serve as a guide to the program committee. In general terms these activities are:

1. Social activities which bring together the fathers and mothers and teachers.
2. Programs that educate in child betterment, home betterment, and school betterment.
3. Providing necessary equipment for children who could not otherwise go to school, such as clothes, school books, eye-glasses, etc.
4. Providing material help for the school for which the Board of Education may not be able to appropriate funds, such as musical and playground equipment, pictures, trees, shrubs, etc.

5. Promoting child welfare legislation that is entirely non-partisan.

What a Parent-Teacher Association Should Not Be

And there are certain lines of activity into which the Association should never venture. To allow its energies to be used in these directions is to make a failure. In general terms these activities are:

1. It should never be a destructive agent; its function is to build up with encouragement and help, and not to tear down with malicious or hasty criticism.
2. It must never allow itself to be used by factions of any kind.
3. It should never allow personal grievances to be discussed in its meetings.
4. It should never interfere with school management, or attempt to dictate school policies, or plan out school programs.

The Extensive Field of Work

Between these positive and negative limits, what the association should consider and what it should not consider, is a wide field of useful effort. The value of the association to any community will depend upon the use made of its opportunities. The richest mine in the world is of no use unless it is worked; to derive value from any form of social activity we must make use of its facilities. It is so with this organization. It can be made a blessing, but the people in any community where it is organized must do their part. At the meeting of the Associations the questions up for discussion must be live subjects of interest to the schools, the children, and the community.

Topics Bearing Directly on the Schools

In the department of "The New Education in these Study Guides" (4449-4531) we have considered, in general terms, a very large number of topics, anyone of which could be made the subject of a most interesting evening discussion. Let us select, almost at random, one general subject, "New Equipment" (4459-4469). We have very briefly considered twenty-four topics, treating of school grounds; play grounds and necessary apparatus; school buildings, etc. Of necessity, we could only point out what was needed, show new ideas in connection with such requirements. Our brief treatment will serve as the foundation for further discussion in the Parent-Teacher Association. The treatment we have given can be supplemented with material gathered from other sources.

The Value of Such a Discussion

It is not necessary to point out the great practical value of such a discussion. Educational methods have made such rapid progress of late years that men and women whose school days have receded in the vista of past years are bewildered when they are told of modern requirements, and yet every modern innovation serves a good purpose in education. If the entire community—all interested in the community—can be fully informed on these points the result will be vastly improved school equipment. Who can measure the good of such results? Beautiful grounds, tastily laid out and ornamented; buildings beautiful in design with a plentiful supply of shrubs and flowers—all tend to develop the higher parts of our complex nature. We see more of beauty in life, higher ideals float before us.

Other Topics

But this is only one illustration. Let us consider the general subject of the "New Education and the Home" (4476-4488). In outline we have presented no less than twenty-five topics, every one of them a fit subject for discussion by the Association. Here again advance in school methods has been so rapid that only those who have kept fully informed understand the importance of the subject; but everyone is a forward-step, everyone results in widening the horizon of our thoughts, and makes life itself richer in contents. As we have already remarked, we call attention to these topics already discussed, not because the

treatment is full and complete, but because enough is given to start the discussion which is to be supplemented from other sources.

Home Making

Home making is a subject that could be profitably discussed by the Parent-Teacher Association. It is directly in line with the objects of the society. The very foundation of community well-being is the home. Material for discussion will be found in "The New Education" (4490-4498). There we have considered what the school can do to supply training that will make efficient home-makers. Many topics of vital interest are there briefly treated, everyone is a fit subject for discussion by the association.

It were tiresome to enlarge on this subject. Enough has been given to show what an extensive field of discussion is open for the Parent-Teacher Association in relation to the schools and they are topics of absorbing interest. All teachers —worthy of the name—are anxious to be

ALL WORK AND NO PLAY MAKES JACK A DULL BOY

TRAINING IN HEALTH HABITS

informed fully in these points. Parents can renew their waning interests in educational matters by considering the widening field of present day methods. There is also inspiration from the wider outlook they gain from the discussion of modern methods. In this one respect alone the worth of the Parent-Teacher Association is convincingly shown.

The Parent-Teacher Association and the Community

The aim of the Association is, of course, to revive the community spirit of earlier days. The word, community, here means a section of county forming a unit of activity. It may be a school district, several districts consolidated, or an entire township. One purpose of the Association is to rouse in the people of any given community the feeling that they are one, with common interests which they are to promote by united effort. The only way that can be done is to bring the people together, not only for discussions, but for recreation. It is the work of the Association to consider ways and means

of accomplishing such a result. We have alreay pointed out some wonderful results that attended such efforts (see 4510).

Pre-School Training

This is a division of the activity of the Association, concerned with home training of children too young to attend a formal school, and this division is also interested in kindergarten work. Many topics at once present themselves for discussion. Froebel and his work are to be considered. As a help in this discussion we have prepared an account of the training of children from infancy to kindergarten age. (See "Before School Life Begins," 3225.) This will serve to introduce the subject. This is an extremely important part of the work of the Association. It is a discussion of methods whereby the germs of the finer elements of our nature are developed.

Home Training

The Association is interested in considering the general question of home training. There are no more important subjects for it to consider. It is not necessary for us to repeat what we have already considered. ("Suggestions to Parents and Teachers," 3649.) Here are topics deserving of careful discussion. Any agency like this Association that aims to impress on the minds of parents duties they are prone to forget in the hurry and cares of everyday life (see 3652), is serving a purpose, than which none is more important in the entire field of education.

The Widening Field of Education

We have in the last few pages considered three great educational schemes that have been developed since this century opened, that—unitedly—wonderfully enlarges the general meaning of education, and effects changes almost revolutionary in character. Men and women in the prime of life can recall, with a smile, the restricted meaning of education when they were children, or rather what was meant by a "common school education." Now the education of children includes greatly more than in former years.

The Education of Home

Education is now a home and a community affair. Schools and teachers are but a part of the agencies employed. The education of the child begins in the home long before school age has been reached. Parents themselves are the teachers. They bring to their work their stores of parental love. They train themselves for their work. Mothers' circles are organized for this purpose. The Association is ready to discuss with parents the methods employed. In the light of our present understanding these early years of home training are seen to be the most important part of child education. This period is concerned with the beginning of things. And the first step is the most important. The physical, mental, and moral nature of the little child—symbolized by the opening flower—is under their care, subject to their guidance. They are to journey with their children through these years and direct the formation of habits that will be helpful all through life.

School Education

Then come the years of school life, but it is no longer the education of the school alone. The home and the school are brought together in hearty coöperation. Parents and teachers—the entire community—work together, consult together, plan together; they mutually understand each other. And the school itself is simply a larger home, though a home set apart for special purposes, supplied with special equipment. All can see how much richer such an education is. This ideal has not been fully realized, but it is the end for which many forces are working. And the Parent-Teacher Association is the agency destined to accomplish this result.

A YOUNG "DEMOSTHENES"

SPECIAL DAY EXERCISES

"Special days" in school are those during which the regular work of the school pauses, in order that the pupils may commemorate with appropriate exercises the services of great men like Lincoln and Washington; or fittingly celebrate notable events in the nation's history, such as the signing of the Declaration of Independence or the close of the World War; or interpret and inspire interest in such customs and movements as are honored on Decoration Day and Labor Day. Not only is it fitting for the schools to celebrate these days set aside for special purposes, but each occasion can be made to impart a lesson that leads to the upbuilding of character.

Since the schools, as a rule, are not in session on these special days—they being legal holidays—the exercises appropriate to a certain day are generally held on the day preceding, or on a preceding Friday. In some cases—like the Fourth of July observance—the exercises are intended to be a community celebration. Special programs, carefully worked out, make the days on which they are presented, red-letter ones in the school calendar. As a result of thoughtful preparation, interest increases as each day approaches and inspiration for work dates from its observance. With each program lessons are presented that cannot be drawn from text-books and ideals formed that may color the entire life.

The Central Thought of the Day

To make special day exercises a success the teacher must put her earnest endeavor into the work of program preparation. But no teacher who realizes that teaching is service,—that into her hands is intrusted the most priceless thing in the world, the mind of a little child,—will shrink from this work of preparation, indeed the work becomes a labor of love when she realizes the possible results to be attained. She will strive

not only to arrange a program that will interest her pupils, but one that draws out the hidden message of the day and impresses it on their minds.

The principal thoughts which these exercises tend to impress upon the pupil, may be the duty of loyal service to his country as illustrated in the life of Washington, or the depth and meaning of a mother's love, which is the urgent thought on Mother's Day. There may be an appeal to patriotism, as is the case on Flag Day. In every case there is a central thought of duty, loyalty or chivalry and the thorough teacher will search out the leading thought of the day, formulate it in a few trenchant sentences, and select a program that emphasizes it.

Special Days and the Community

But the benefits of special day exercises are not confined to the school proper. The special days should be get-together days in the community. Wherever a parent-teacher organization exists it should lend a hand; as many members as possible should attend and they can also assist in the matter of room decoration. This affords the teacher an opportunity to become better acquainted with the parents, and the parents better informed as to the work of the school. In this and other ways special days in schools are productive of good.

Our Object

Our purpose in this department of the Study Guides is to help the teachers in this preparatory work. Their time is very fully occupied with necessary routine work, and however willing they may be to prepare for special day work they do not have necessary material for the exercises at hand. We have therefore gathered and arranged a store of material from which topics of interest for papers, essays and orations can be drawn, we will also venture a few hints as to room-decoration, music, and the teacher's opening remarks. Of necessity the program will vary with the nature of the day; and yet there is much that is common in all special day exercises.

Our hope is that with the assistance thus offered, teachers may more readily arrange a suitable program, more clearly grasp the central thought of the day and, more earnestly present it, that all may profit by these Special Day Exercises.

Lives of great men all remind us
  We can make our lives sublime,
And departing, leave behind us
  Footprints in the sands of time.

Footprints that perhaps another,—
  Sailing o'er life's solemn main,—
A forlorn and shipwrecked brother,
  Seeing, shall take heart again.

Let us then be up and doing,
  With a heart for any fate;
Still achieving, still pursuing,
  Learn to labor and to wait.

COLUMBUS DAY

October 12

As this day is not a legal holiday, the schools are generally in session, and the exercises can be held on the day itself or on the preceding Friday if desired. It is eminently fitting that this day be commemorated, for it is the anniversary of one of the great events in history. It marked the beginning of a new age in the world's progress. Columbus is, indeed, the center around which the exercises gather; but, after all, it is not the man himself that we commemorate, but the Discovery of America. It is well for the pupils to understand the vast importance of that discovery—its great influence on civilization, for it broadened the world's conceptions and marked the definite breaking away from many traditions of the past.

Room Decorations

No special room decorations are necessary. If a large picture of Columbus can be secured, let it be displayed in a conspicuous position. A large map of the world on which the first voyage can be traced—to be used later in the program—should be hung on the board.

The Message of the Day

In the opening talk by the teacher, it is suggested that she leave to the exercises proper the description of Columbus and his voyages, but that she very briefly point out the influence of the discovery on civilization. Speak of the resolute perseverance of Columbus that sustained him through years of discouragement and trials in the pursuit of his ideals and led to final triumph. From this a lesson can be drawn that may inspire pupils to be faithful to their ideals, to persevere resolutely in plans for life they may have formed. All this must be brief, but the teacher may sow seed that will influence a life.

The Program

A paper, or one or more brief essays on the life of Columbus, will be very interesting and effective. The material for such purposes can be drawn from the article on Columbus in the reference volumes of this work, Vol. II, page 659, which gives a very full account of his life and voyages. A biographical graphic of Columbus is given in Vol. X, page 4210. Another interesting exercise is to have one of the pupils trace the first—or any other voyage—on the map already spoken of. In addition to these exercises, music—any good school songs—recitations, readings and declamations, make up the program of the day. We have arranged material that can be used for such purposes on the following pages.

Readings

The Landing of Columbus. It was on Friday morning, the 12th of October, 1492, that Columbus first beheld the New World. On landing, he threw himself on his knees, kissed the earth, and returned thanks to God with tears of joy. His example was followed by the rest, whose hearts indeed overflowed with the same feelings of gratitude. Columbus then, rising, drew his sword, displayed the royal standard, and took solemn possession, in the name of the Castilian sovereigns, giving the island the name of San Salvador. The feelings of the crew now burst forth in the most extravagant transports. They thronged about the Admiral with overflowing zeal, some embracing him, others kissing his hands. Those who had been most mutinous and turbulent during the voyage were now most devoted and enthusiastic. Some begged favors of him as if he had already wealth and honors in his gift. Many abject spirits, who had outraged him by their insolence, now crouched at his feet, begging pardon for all the trouble they had caused him, and promising the blindest obedience for the future.

Columbus' Return to Palos. Great was the agitation in the little community of Palos, as they beheld the well-known vessel of the Admiral re-entering their harbor. Their desponding imaginations had long since consigned him to a watery grave; for, in addition to the

COLUMBUS AT THE COURT OF FERDINAND AND ISABELLA

preternatural horrors which hung over the voyage, they had experienced the most stormy and disastrous winter within the recollections of the oldest mariners. Many of them had relatives on board. They thronged immediately to the shore to assure themselves with their own eyes of the truth of their return. When they beheld their faces once more, and saw them accompanied by the numerous evidences which they brought back of the success of the expedition, they burst forth in acclamations of joy and gratitude. They awaited the landing of Columbus, when the whole population of the place accompanied him and his crew to the principal church, where solemn thanksgivings were offered up for their return, while every bell in the village sent forth a joyous peal in honor of the glorious event.

His Triumphant Journey to the Capital. He took with him on his journey specimens of the multifarious products of the newly discovered regions. He was accompanied by several of the native islanders, arrayed in their simple barbaric costumes, and decorated, as he passed through the principal cities, with collars, bracelets, and other ornaments of gold rudely fashioned. He exhibited also considerable quantities of the same metal in dust, or in crude masses, numerous vegetable exotics possessed of aromatic or medicinal virtues, several quadrupeds unknown to Europe, and birds of gaudy plumage which gave a brilliant effect to the pageant. The Admiral's progress through the country was everywhere impeded by the multitudes thronging forth to gaze at the extraordinary spectacle of the more extraordinary

man, who, in the emphatic language of the time, which had now lost its force from its familiarity, first revealed the existence of a "new world." As he passed through the busy, populous city of Seville, every window, balcony, and house-top, which could afford a glimpse of him, was crowded with spectators.

Columbus Before the Court. Ferdinand and Isabella were seated, with their son, Prince John, under a superb canopy of state, awaiting his arrival. On his approach they arose from their seat, and, extending their hands to him to salute, caused him to be seated before them. After a brief interval they requested from Columbus a recital of his adventures. His manner was sedate and dignified, but warmed with the glow of natural enthusiasm. He enumerated the several islands he had visited, expatiated on the temperate character of the climate, and the capacity of the soil for every variety of production, appealing to the samples imported by him as evidence of their natural productiveness. When Columbus ceased, the King and Queen, together with all present, prostrated themselves on their knees in grateful thanksgiving, while the solemn strains of the Te Deum were poured forth by the choir of the royal chapel, as in commemoration of some glorious victory.

COLUMBUS AND HIS WORK

Long lay the ocean-paths from man concealed;
Light comes from Heaven,—the magnet is revealed,
A surer star to guide the seaman's eye
Than the pale glory of the northern sky;
Alike ordained to shine by night and day,
Through calm and tempest, with unsetting ray,
Where'er the mountains rise, the billows roll,
Still, with strong impulse turning to the pole,
True as the sun is to the morning true!
Through light as film, and trembling as the dew.

Then man no longer plied with timid oar
And failing heart along the windward shore;
Broad as the sky he turned his fearless sail,
Defied the adverse, wooed the favoring gale,
Bared to the storm his adamantine breast,
Or soft on ocean's lap lay down to rest;
While free as clouds the liquid ether sweep
His white-winged vessels around the unbounded deep;
From clime to clime the wanderers loved to roam
The waves his heritage, the world his home.

Then first Columbus, with his mighty hand
Of grasping genius weighed the sea and land;
The floods o'er balanced; where the tide of light,
Day after day rolled down the gulf of night,
There seemed one waste of waters; long in vain
His spirit brooded o'er the Atlantic main,

When, sudden as creation burst from naught,
Light, order, beauty! his mind explored
The unveiling mystery, his heart adored;
Where'er sublime imagination trod,
He heard the voice, he saw the face of God.

Far from the western cliff he cast his eye,
O'er the wide ocean, stretching to the sky;

COLUMBUS DAY
Suggestive Program

I.

Song, "Hail Columbia"..*Hopkinson*
Columbus .....*T. C. Adams*
Essay, "Early Life of Columbus"
Columbus .....*Joaquin Miller*
Christopher C—
Columbus to Ferdinand.....*Mason*
Essay,
"The First Voyage of Columbus"
Columbus.....*Olive E. Dana*
Essay, "The Second Voyage"
Columbus Crossing the Atlantic..
.....*Arthur Hugh Clough*
Essay, "The Third Voyage"
Columbus in Chains.....
.....*Mary J. Jewsbury*
Song, "Columbia, My Land"

II.

Song, "America"
Dramatization—Columbus Before Ferdinand and Isabella
Essay, "What Columbus Knew About the World"
Columbus.....*L. H. Sigourney*
Columbus at the Court of Spain..
.....*Mr. L. E. Boyd*
Columbus.....*Aubrey De Vere*
Essay on Courage
Dramatization—"The Landing of Columbus"
Song, "Columbia, the Gem of the Ocean"

COLUMBUS TAKING POSSESSION OF THE NEW WORLD

In calm magnificence the sun declined,
And left a paradise of clouds behind,
Proud at his feet, with pomp of pearls and gold,
The billows in a sea of glory rolled.

CHRISTOPHER C——

In the city of Genoa, over the sea,
In a beautiful land called Italy,
There lived a sailor called Christopher C——
A very wise man for his time was he.

He studied the books and maps and charts,
All that they knew about foreign parts;
And he said to himself: "There certainly oughter
Be some more land to balance the water.

"As sure as a gun, the earth is round;
Some day or other a way will be found
To get to the east by sailing west;
Why shouldn't I find it as well as the rest?"

The court philosopher shook his head,
Laughing at all that Christopher said;
But the Queen of Spain said, "Christopher C—
Here is some money, go and see."

That was just what he wanted to do,
And in fourteen hundred and ninety-two,
From the port of Palos, one August day,
This Christopher C— went sailing away.

He sailed and sailed with wind and tide,
But he never supposed that the sea was so wide.
And the sailors grumbled and growled and cried,
"We don't believe there's another side.

"Oh, take us back to our native shore,
Or we never shall see our wives any more!
Take us back, O Christopher C—,
Or we will tumble you overboard into the sea."

In spite of their threats he wouldn't do it:
There was land ahead and Christopher knew it.
They found San Salvador, green and low,
And the captain shouted, "I told you so!

"This is the land King Solomon knew,
Where myrrh and aloes and spices grew,
Where gold and silver and gems are found,
Plenty as pebbles all over the ground!"

They thought they had sailed clear 'round the ball,
But it wasn't the other side at all,
But an island lying just off the shore
Nobody had ever seen before.

They planted their flag on a flowery plain,
To show that the country belonged to Spain,
But it never once entered Christopher's mind
That North America lay behind.

Then Christopher C— he sailed away,
And said he would come another day;
But if he had stayed here long enough,
We should talk Spanish or some such stuff.

HOW DID HE DO IT?

How in Heaven's name did Columbus get over
  Is a pure wonder to me, I confess;
Cabot and Raleigh, too, that well-read rover,
  Frobisher, Dampier, Drake, and the rest.
    Bad enough all the same
    For them that after came,
    But in great Heaven's name
    How he should ever think
    That on the other brink
Of this wild waste terra firma should be,
Is a pure wonder, I must say, to me.

How a man should ever hope to get thither,
  E'en he knew that there was another side,
But to suppose he should come any whither,
  Sailing straight on into chaos untried,—
    In spite of the motion
    Across the whole ocean,
    To stick to the notion,
    That in some nook or bend
    Of a sea without end
He should find North and South America,
Was a pure madness, indeed, I must say.

What if wise men had, as far back as Ptolemy,
  Judged that the earth like an orange was round,
None of them ever said, "Come along, follow me,
  Sail to the West and the East will be found."
    Many a day before
    Ever they'd come ashore,
      Sadder and wiser men,
      They'd have turned back again;
And that he did not, but did cross the sea
Is a pure wonder, I must say, to me.

COLUMBUS ON HIS VOYAGE

Behind him lay the gray Azores,
  Behind the Gates of Hercules;
Before him not the ghost of shores,
  Before him only shoreless seas.
The good mate said: "Now must we pray,
  For lo! the very stars are gone!
Speak, Admiral, what shall I say?"
  "Why say, 'Sail on, sail on! and on!'"

"My men grow mutinous day by day;
  My men grow ghastly wan and weak!"
The stout mate thought of home; a spray
  Of salt wave washed his swarthy cheek.
"What shall I say, brave Admiral, say,
  If we naught but seas at dawn?"
"Why, you shall say, at break of day,
  'Sail on! sail on! sail on! and on!'"

They sailed and sailed, as winds might blow,
  Until at last the blanched mate said:
"Why, now not even God would know
  Should I and all my men drop dead.
These very winds forget their way,
  For God from these dread seas is gone.
Now speak, brave Admiral, speak and say—"
  He said: "Sail on! sail on! and on!"

They sailed! They sailed! Then spoke the mate:
  "This mad sea shows his teeth tonight.
He curls his lip, he lies in wait,
  With lifted teeth, as if to bite!
Brave Admiral, say but one good word:
  What shall we do when hope is gone?"
The words leapt as a leaping sword;
  "Sail on! sail on! and on!"

Then pale and worn, he kept his deck,
  And peered through darkness. Ah, that night
Of all dark nights! And then a speck—
  A light! A light! A light! A light!
It grew, a starlit flag unfurled!
  It grew to be Time's burst of dawn.
He gained a world; he gave that world
  Its grandest lesson; "On and on!"

—*Joaquin Miller.*

HALLOWE'EN

October 31

This is not a legal holiday, but by immemorial custom it has become the occasion for playful practices supposed to be characteristic of old beliefs, which the educated world has long since outgrown. Then it is that uncouthly dressed, fun-loving young folks play at being witches, ghosts and fairies; while fantastic lanterns—perhaps the home-made pumpkin variety—lend an eery charm to the evening. It is not strange that all this appeals to the imagination of youth, for its practices hark back to a time when humanity was young in the world, and they are in tune with youthful thought in a way that we, who are older grown, can not understand. And so it is that the wide-awake teacher of primary grades does well to prepare a simple program for Hallowe'en, even though no lesson of great educational value can be drawn from the exercises.

It has been suggested that preparing some quaint room decorations may constitute the "Busy Work" for days preceding Hallowe'en itself. Such work is sure to be very interesting to the little pupils. Let them make booklets in the shape of pumpkins, black cats, witches' hats, or broomsticks; these may also serve as invitations for their parents to visit the school. Rows of cats, or fairies or brownies may be cut out of white paper and used as a border for the blackboard. On the day itself, some of the boys might bring in a jack-o'-lantern to stand on the desk. The program itself will be a simple one,—school songs, one or more recitations. The teacher might tell—not read—some short fairy story. We have arranged a few articles suitable for recitations.

A gipsy flame is on the hearth,
Sign of this carnival of mirth.
Through the dun fields and from the glade
Flash merry folk in masquerade—
It is the witching Hallowe'en.

Pale tapers glimmer in the sky,
The dead and dying leaves go by;
Dimly across the faded green
Strange shadows, stranger shades are seen—
It is the mystic Hallowe'en.

Soft gusts of love and memory
Beat at the heart reproachfully;
The lights that burn for those who die
Were flickering low, let them flare high—
It is the haunting Hallowe'en.

—*A. F. Murray.*

HALLOWE'EN PROGRAM

Where the bee sucks there suck I;
In a cowslip's bell I lie;
There I couch when owls do cry,
On the bat's back do I fly.

—*Shakespeare.*

The Brownie Song.....*Gaynor*
Fairies of the Caldon Low...*Howitt*
Song, "Comin' Through the Rye"
The Shoemaker and the Elves.*Grimm*
The Gifts of the Dwarfs
The Fairies
Essay, "Origin of Hallowe'en"
Dramatization of Cinderella
Reading from Adventures of a Brownie .....*Craik*
Tam O'Shanter.....*Burns*
Song, "Annie Laurie"
Little Orphant Annie.....*Riley*
Jack O'Lantern Drill

HALLOWE'EN

Pixie, kobold, elf, and sprite
All are on their rounds tonight,—
In the wan moon's silver ray
Thrive their helter-skelter play.

Fond of cellar, barn, or stack
True unto the almanac,
They present to credulous eyes
Strange hobgoblin mysteries.

THE SPIRIT OF HALLOWE'EN

Cabbage-stumps—straws wet with dew—
Apple-skins, and chestnuts too,
And a mirror for some lass
Show what wonders come to pass.

Doors they move, and gates they hide
Mischiefs that on moonbeams ride
Are their dees,—and, by their spells,
Love records its oracles.

Don't we all, of long ago
By the ruddy fireplace glow,
In the kitchen and the hall,
Those queer, coof-like pranks recall?

Eery shadows were they then—
But tonight they come again;
Were we once more but sixteen
Precious would be Hallowe'en.

—*Joel Benton.*

THANKSGIVING DAY

In its present form, this is a distinctively American holiday; but it is, after all, a revival of a world-wide, age-old festival modified by peculiar circumstances and Puritanic thought. It is the one holiday in the United States set aside by official proclamation each year. The school exercises are generally held the Wednesday afternoon preceding the day itself.

The lesson of the day to be emphasized by the teacher is the thankfulness all should feel for the good that has been bestowed during the year just closing; a recognition that all are dependent upon a Higher Power manifesting through what we call Nature. When this thought has been brought out, application can be made to individual circumstances of the year,—good crops, the blessing of national peace, freedom from epidemics, etc.

Room Decorations

Thanksgiving being essentially a harvest festival, the room can be appropriately decorated with harvest emblems,—stalks of corn with half-husked ears hanging down, apple-tree boughs with apples on, a small basket of potatoes on the platform, wreaths of forest leaves colored by the frost, a pumpkin or so resting near the corn stalks, etc. American flags are always in order. On the board, let some sentence or verse appropriate to the day be printed.

History of Thanksgiving Day. Each autumn the Romans held thanksgiving feasts in honor of the goddess Ceres; the Greeks, at about the same time, honored Demeter. The Israelites, too, set aside days for thanksgiving, of which the Feast of the Tabernacles is the oldest one known. Special days have been set aside for thanksgiving purposes by various nations from time to time. The Hollanders celebrated such a day in October, 1575, for their deliverance from the Spaniards in the siege of Leyden; England celebrated September 3, 1588, as a day of thanksgiving for the defeat of the Spanish Armada. Another special Thanksgiving day was February 27, 1872, to express the

SUGGESTIVE PROGRAM FOR THANKSGIVING

The wee bird has its nest
Safe in the tree so tall;
For Birdlings' nest, for children's homes,
I thank the Lord for all.

Thanksgiving Hymn...*Montgomery*
Reading of the Thanksgiving Proclamation
A Thanksgiving.....*Lucy Larcom*
When the Frost Is on the Pumkin .....*Riley*
Essay, "The Pilgrims' Journey to America"
Thanksgiving Day..*Lydia M. Child*
Essay, "The First Thanksgiving"
Autumn Fires.....*Stevenson*
The Pumpkin.....*Whittier*
Fable of the Ant and the Grasshopper
What the Wood Fire Said to the Little Boy.....*Frank L. Stanton*
"The Corn Song"
The Story of a Seed
The Gift of Maize—From Hiawatha's Feasting...*Longfellow*
Thanksgiving Quotations
Tableaux—
- Puritans going to church
- The Puritan (Deacon Chapin)
- Priscilla and John Alden
- A Thanksgiving dinner in Old New England
- The visit of an Indian chief
- Landing on Plymouth Rock

Song, "We Thank Thee"

gratitude of the nation for the restoration of the Prince of Wales to health; still another was celebrated June 27, 1887, the occasion being the Jubilee of Queen Victoria's fifty years' reign.

The first Thanksgiving in North America was held in Plymouth in November, 1621, a little less than a year after the landing of the Puritans. It was appointed entirely for religious purposes, in order to give the settlers an opportunity to express their gratitude for the perils they had passed and for the bounties they had enjoyed. The settlers entertained many Indian guests on that occasion, the great chief, Massasoit, and ninety men being among the number. The Indians reciprocated by killing five deer and bringing them in to the colonists. In that first celebration the feasting continued over several days. Two years later another Thanksgiving was appointed by the Puritans, after rain came in time to enable them to raise a crop of corn. Three years later still another was held when a ship arrived in the nick of time. After that the custom seems to have become general, and it passed to the other colonies. When Washington was president he issued a national proclamation and the various states followed. But Thanksgiving was not observed uniformly on the same day in the United States until 1863. Since that year the last Thursday in November has been observed generally.

"THE CORN SONG"

Heap high the farmer's wintry hoard!
  Heap high the golden corn!
No richer gifts has Autumn poured
  From out her lavish horn!

Let other lands, exulting, glean
  The apple from the pine,
The orange from its glossy green,
  The cluster from the vine;

We better love the hardy gift
  Our rugged vales bestow,
To cheer us when the storm shall drift
  On harvest-fields like snow.

Through vales of grass and meads of flowers,
  Our ploughs their furrows made,
While on the hills the sun and showers
  Of changeful April played.

We dropped the seed o'er the hill and plain,
  Beneath the sun of May,
And frightened from our sprouting grain
  The robber crows away.

And through the long, bright days of June
  Its leaves grew green and fair,
And waved in hot midsummer's noon
  Its soft and yellow hair.

And now, with Autumn's moonlit eves,
  Its harvest-time has come,
We pluck away the frosted leaves,
  And bear the treasure home.

—*John Greenleaf Whittier.*

OUR FIRST THANKSGIVING DAY

Children, do you know the story
  Of the first Thanksgiving Day,
Founded by our Pilgrim fathers
  In that time so far away?

They had given, for religion,
  Wealth and comfort, yes and more,
Left their homes, and friends, and kindred
  For a bleak and barren shore.

On New England's rugged headlands,
  Now where peaceful Plymouth lies,
There they built their rough log cabins,
  'Neath the cold forbidding skies.

And too often e'en the bravest
  Felt his blood run cold with dread
Lest the wild and savage red-man
  Burn the roof above his head.

Want and sickness, death and sorrow,
  Met their eyes on every hand,
And before the springtime reached them,
  They had buried half their band.

But their noble, brave endurance
  Was not exercised in vain;
Summer brought them brighter prospects,
  Ripening seed and waving grain.

So the Governor, William Bradford,
  In the gladness of his heart,
To praise God for all His mercies,
  Set a special day apart.

That was in the Autumn, children,
  Sixteen hundred and twenty-one;
Scarce a year from when they landed,
  And the colony begun.

And now when in late November,
  Our Thanksgiving feast is spread,
'Tis the same time-honored custom
  Of those Pilgrims, long since dead.

We shall never know the terrors
  That they braved, years, years ago.
But for all their struggles gave us,
  We our gratitude can show.

And the children of this country,
  If they feast, or praise, or pray,
Should bless God for those brave Pilgrims,
  And their first Thanksgiving Day.

PILGRIMS ON THE WAY TO CHURCH

PLYMOUTH ROCK

FATHER, WE THANK THEE

For flowers that bloom about our feet,
For tender grass so fresh and sweet,
For song of birds and hum of bee,
For all things fair we hear or see,
For blue of stream and blue of sky,
For pleasant shade of branches high,
For fragrant air and cooling breeze,
For beauty of the blooming trees,
For mother-love and father-care,
For brothers strong and sisters fair,
For love at home and here each day,
For guidance lest we get astray,
For this new morning with its light,
For rest and shelter of the night,
For health and food, for love and friends.
For ev'rything thy goodness sends,
Father in heaven, we thank thee.

—*Emerson.*

CHRISTMAS

DECEMBER 25

Christmas is a very ancient festival adopted by the church very early in the Christian Era to commemorate the birth of Jesus of Nazareth, and is so celebrated wherever Christianity is the prevailing religion. It is thus the universal holiday of Christendom. While the general spirit of the celebration is the same everywhere, each country has its particular method of celebration. In our country gifts are exchanged and it is made the occasion for feasting and general enjoyment. The school exercises are generally held on the last day of school preceding the holiday vacation.

Decorations

Decorate the room with festoons of evergreen and sprays of holly. Christmas bells suspended in various parts of the room add to the attraction; bunting and flags are also appropriate. It takes some time and labor properly to decorate the room, but the lesson of the day to be impressed on youthful hearts is so beautiful that anything that will aid in implanting it on the receptive hearts of pupils should be employed.

For the lesson of the day is the beauty of loving service, even as the day itself is commemorative of the birth of Him who went about doing good. It is the season of peace on earth, good will to men, when we are to lose sight of the selfish strife of the earth. The teacher who has intuition sufficient to see behind the mirth and frolic of Christmas this deeper lesson, and tact enough to bring it home to the hearts of her pupils in a few well-chosen remarks (occupying not more than five minutes), is imparting a lesson of far greater importance than any taught in text-books. Songs, readings and recitations compose the program.

ORIGIN OF THE CHRISTMAS TREE

(Adapted from a German legend)

Hans and Gretchen were left alone in the cottage one cold winter evening and were seated before the fire, telling each other stories of what they had seen in the forest. Suddenly there came a timid knock at the door. Though very much afraid they hastened to undo the door. They found standing before the door, in the cold and darkness, a little boy, having no shoes on his feet, very thinly clad and shivering with cold.

He asked in a timid voice if he might come in and warm himself. "Yes, indeed," cried the children, and they gently drew him into the room. "Sit in this warm corner," they insisted, giving him their seat, though that meant depriving themselves of their warm and cozy seats. They gave him to eat of their frugal supper, though that meant going hungry themselves. And then, as he was very tired, they gave him their bed, though that meant sleeping on rude benches, without sufficient covering themselves.

But sleep finally came to them. They were gently awakened by strains of sweet music; going to the window, they found that a band of children, clad in shining robes, were playing on golden harps before their cottage and a beautifully soft but pleasing light was all around them, while the air seemed balmy. Suddenly the strange child stood before them, no longer cold and ragged, but dressed in shining robes, and his soft voice was speaking to them:

"I was cold and ye took me in. I was hungry and ye fed me. I was tired and ye gave me your bed. I am the Christ-child wandering through the world to bring peace and happiness to good children. As ye gave me, so will this tree give you every year at this time rich fruit."

So saying, he broke a branch from a fir tree, planted it in the ground, and he and the shining children disappeared. But the branch grew into a beautiful tree, and every year bore a crop of toys and all things good for the children.

CHRISTMAS BELLS

Hark! the bells of Christmas ringing!
All abroad their echoes flinging,
Wider still and wider winging
On the waste of wintry air.
On their solemn, swift vibrations,
Rapture, rapture through the nations,
Rapture tells their glad pulsations
Millions blissful bosoms share.

Every bell to every hammer
Answers to a joyous clamor,
Answers till from out the glamor
Of the ages far and dim,

Till from Bethlehem's stable lowly,
Fair as moonrise, opening slowly,
Streams of radiance, pure and holy,
Down the brightening centuries swim.

Earth's sad wails and wrangling,
Like wild bells in night-storms jangling,
Now their jarring tones untangling
In some deep harmonious rhyme,
Touched by Love's own hand supernal,
Hush their dissonance infernal,
Catch their rhythmic march eternal,
Throbbing through the pulse of time.

Hark! the Christmas bells resounding,
Earth's old jargon all confounding!
Round the world their tumult bounding
Spreads Immanuel's matchless fame!
Million hands their offerings bringing,
Million hearts around Him clinging,
Million tongues hosannas singing,
Swells the honors of his name!

CHRISTMAS PICTURES

These are the merry hours they say,
The loveliest ones that come and go
And gild our lives with colors gay
As those which in the blossoms glow,
Whose skies to happy eyes are bright
With peace, and joy, and Love's own light.

I see the boys, all smiles and glee,
Bear by the green and fragrant pine,
But there are those whose cheeks are wan, ah! me,
While theirs are ruddy as the wine,
And their young hearts have had no share
In life's great woes, and sad despair.

I hear the swift sleigh's tinkling bell,
The ringing laugh upon the road,
I see the boys come down the dell,
Beneath their bending holly load,
For this is Christmas Day for all,
In cottage low, or princely hall.

And there is gladness everywhere
This day of all that have been or are to be,
It swells along the frosty air,
From old and young in merry glee,
And earth and sky seem bright and gay
Upon this happy Christmas Day.

Charity walks today abroad
With open hands the poor to cheer,
And thankful hearts are blessing God
That his kind care doth thus appear,
When cold blasts shriek and storm-clouds lower,
To brighten thus life's winter-hour.

Oh! happiest day of all the year,
This long, long-wished for Christmas Day.
List, list, the peal of bells we hear,
They drive all sorrow far away.
Father above, let all receive
The cheer thy love alone can give.

CHRISTMAS LIKE IT USED TO BE

Christmas like it used to be!
That's the thing would gladden me,
Kith and kin from far and near,
Joining in the Christmas cheer.
Oh, the laughing girls and boys!
Oh, the feasting and the toys!
Wouldn't it be good to see
Christmas like it used to be?

Christmas like it used to be,—
Snow a-bending bush and tree,
Bells a-jingling down the lane;
Cousins John and Jim and Jane,
Sue and Kate and all the rest,
Dressed up in their Sunday best,
Coming to that world of glee,—
Christmas like it used to be.

Christmas like it used to be,—
Been a long, long time since we
Wished (when Santa should come)
You a doll and I a drum,
You a book and I a sled,
Strong and swift and painted red;
Oh, that day of jubilee!
Christmas like it used to be.

Christmas like it used to be!
It is still as glad and free,
And as fair and full of truth,
To the clearer eyes of youth,
Could we gladly glimpse it through
Eyes our children's children do
In their joy-time, we would see
Christmas like it used to be.

—*Nixon Waterman.*

CHRISTMAS IN OTHER LANDS

IN ENGLAND the day used to be celebrated by great feasts. Owners of estates entertained in addition to their own families all the people living on their land. This meant that the cooks were busy for days preceding the holiday preparing cakes, puddings, and other choice eatables. The pantries were filled with vegetables of all sorts and with huge roasts. This part of the English Christmas is not observed at the present time.

At midnight bells ring throughout the land to announce the arrival of Christmas. Very early in the morning the children, many of whom are very poor, go about the streets singing Christmas carols.

CAN YOU GUESS WHO HAS JUST BEEN HERE?

CHRISTMAS PROGRAM

I.

For little children everywhere
A joyous season still we'll make
And bring our precious gifts to them
Even for the dear child Jesus' sake.

—*Cary*

Song, "God Rest Ye, Merry Gentlemen"..... *Old Carol*
The Birds of Bethlehem..... *Gilder*
The First Christmas..... *Luke* II, 8-21
The Fir Tree (adapted)..... *Andersen*
Christmas ..... *Proctor*
Jest 'Fore Christmas..... *Field*
Song, "O Little Town of Bethlehem"..... *Brooks*
Scenes from "A Christmas Carol"..... *Dickens*
Christmas at the Cratchits;
Christmas at Scrooge's Nephew's.
Christmas in Old Time..... *Scott*
Little Gottlieb..... *Carry*
While Shepherds Watched Their Flocks..... *Deland*
Christmas Everywhere Tonight..... *Brooks*
The Little Christmas Tree..... *Coolidge*
Song, "Silent Night, Holy Night."

II.

Be merry all, be merry all,
With holly dress the festive hall;
Prepare the song, the feast, the ball,
To welcome merry Christmas.

—*Spencer*

Song, "It Came Upon the Midnight Clear"
Christmas Bells ..... *Longfellow*
Why the Evergreen Keep Their Leaves in Winter
Christmas Snow ..... *Spofford*
A Visit from Santa Claus..... *Moore*
Old Christmas ..... *Howitt*
Scene from "Cricket on the Hearth"..... *Dickens*
The Party at Caleb's
Christmas Song ..... *Field*
Kris Kringle ..... *Aldrich*
Why the Chimes Rang..... *Alden*
Song, "While Shepherds Watched Their Flocks by Night"
What Child Is This?..... *Old Carol*
The Little Match Girl..... *Andersen*
Kris Kringle's Travel..... *Best*
Christmas Carol ..... *Riggs*
Carol's Dinner Party, From the Birds
Song, "Away in a Manger..... *Luther*

In the morning, children help to bring in the great Yule log. This is usually cut the year before so that it may be thoroughly dry before it is used. It is placed in the fireplace and lighted with a piece of the log burned the previous year, saved for this purpose. Children sing and dance as the log burns. The houses and churches are prettily decorated with holly and ivy. Most families have Christmas trees, which the children believe are gifts of St. Nicholas.

IN SWEDEN preparations for Christmas begin two or three weeks before Christmas. Houses are thoroughly cleaned, metal utensils are polished until everything seems spotless. New dresses and suits are made for the children. Then the cooking begins. All kinds of fancy cakes and cookies are made. The cookies are cut to represent different animals and are then frosted and covered with sugar sand. Biscuits are the favorite bread for this season, and piles of them and coffee cake are baked and put away for the holiday feast.

The children who live in the country or in small villages go to the woods and select their own Christmas trees. If the brother is old enough to cut it, he does so. If not, the father cuts it. The children drag it home and trim it themselves. They have no Santa Claus, althought occasionally, to amuse the younger ones, presents are thrown in at the windows and no one sees where they come from. Early Christmas morning lighted candles are put in the windows to light people on their way to church. The Christmas service begins at five o'clock and everyone goes.

IN NORWAY the preparations for the Christmas season are similar to those in Sweden. The children prepare their own Christmas trees, which are lighted at five o'clock Christmas Eve. Upon Christmas Day all animals are given extra food. A sheaf of wheat, saved from the harvest, is fastened to a pole erected near the house for a feast for the birds.

IN GERMANY children have Christmas trees. The housewives prepare the Christmas cakes and cookies in the shape of animals and these are greatly enjoyed. Just before Christmas Eve some one strangely attired calls at each house and inquires if the children have been good. He carries a large bag and a bunch of switches. If the children have been good, he opens a bag and throws nuts about. If a child has not been good, a switch is left to be used in punishing him. This is "Ruprecht." Many children think this is all he does and that the Christ child himself brings their presents.

The little Dutch children think that St. Nicholas drives a white horse. So they clean their wooden shoes, fill them with oats and hay for the white horse, nd in the morning wake to find their shoes filled with candy and toys.

CHRISTMAS IN BELGIUM is much like that in Holland, except that the children put carrots in their shoes for the good saint's horse. If the horse smells the carrots, it will enter the house, and St. Nicholas will remember all who are good to his horse.

IN DENMARK the children believe that a good Brownie Nisson, who looks like a little, old man with a long, gray beard and who lives underground, comes to bring them gifts. Christmas Day is spent in family reunions.

CHRISTMAS IN RUSSIA is spent in feasting. Houses and churches are beautifully decorated with greens, and most families have a Christmas tree. Christmas Eve the children sing and dance.

THE FRENCH Santa Claus is called Pere Noel, which means Father Christmas. He visits each home and rewards good children. Ruprecht, who carries switches for bad children, comes with Noel. Only the children receive presents. They place their shoes in one corner of the room, and in them Noel leaves their gifts.

The children's Christmas friend in ITALY is what we know as Mother Goose. They call her Befana and watch for her appearance on the broomstick she rides. Italian people usually have fireplaces instead of stoves. They have a large log called the Christmas log, which they place on the fire Christmas. The boys and girls recite poems and sing songs. Then they go into another room where a large urn or vase stands in the center of a table, filled with gifts.

THE SWISS children place one shoe outside the door for two Saturdays before Christmas. If they have been good they will find candy and nuts in their shoes. Christmas Eve they go to bed early and waken the next morning to find a loaded Christmas tree.

IN SPAIN AND PORTUGAL Christmas is celebrated by family reunions and elaborate religious ceremonies. Three kings (the three Wise Men) perform the duties of Santa Claus.

IN AUSTRIA lighted candles are placed in the windows Christmas Eve so that the Christ child in passing will not stumble. Three special candles are made for the occasion and a Christmas log is cut for the fireplace.

NEW YEAR

January 1

Immemorial custom has celebrated the first day of the year with festivals of a religious and social nature. All the advanced nations of antiquity observed New Year's Day, but not all on the same calendar day. Among many, the year began with the first of March,—in the spring. The Romans made it begin the first of January, in winter. It was not until late in the sixteenth century that the latter date became universal in all Christian countries. In our country New Year's Day has always been a legal holiday.

The schools not being in session on New Year's Day, exercises appropriate for the day are often made a part of the Christmas exercises; then again, the New Year celebration is often made a community affair—especially where there is a parent-teacher association—when the school takes a distinctive part. For these reasons we shall arrange material that can be drawn on for programs suitable for a New Year's celebration, whether in school or in community.

The room is decorated the same as for Christmas. The music may consist of any good, ringing school songs. The opening remarks are brief: they include wishing all a happy New Year, and remarks on the significance of the day. If addressed principally to the pupils, the message of the day concerns the improvement of time: that another mile-stone has been reached on the way to active life, and that all should take up the work of life with renewed determination to put their best efforts into whatever they undertake.

READINGS SHOWING THE VALUE OF TIME

Time *was* is past—thou canst not it recall;
Time *is* thou hast—employ the portion small;
Time *future* is not and may never be;
Time *present* is the only time for thee.

Spare moments are the gold-dust of time—the portion of life most fruitful in good or evil. When gathered up and pressed into use important results flow from thence; when neglected they are gaps through which temptation finds a ready entrance. Time is the most precious thing in all the world; the only thing it is a virtue to covet, and yet the only thing of which all men are prodigal. Time is so precious that there is never but one moment given at once and that is always taken away before another is bestowed.

It is astonishing what can be done in any department of life when once the will is fired with a determination to use our leisure time rightly. If you gather up your fragments of leisure time and use them judiciously you will find time for the accomplishment of almost any desired purpose.

Old time has turned another page
Of eternity and truth;
He reads with a warning voice to age,
And whispers a lesson to youth.

A year has fled o'er heart and head
Since last the Yule log burned;
And we have a task to closely ask,
What the bosom and brain have learned?

Oh! let us hope that our sands have run
With wisdom's precious grains;
Oh! may we find that our hands have done
Some work of glorious pains.

Then a welcome and a cheer to the merry New Year,
While the holly gleams above us;
With a pardon for the foes who hate,
And a prayer for those who love us.

Have our days rolled on serenely free
From sorrow's dim alloy?
Do we still possess the gifts that bless
And fill our souls with joy?

Are loved ones dear still clinging near?
Do we hear loved voices come?
Do we gaze on eyes whose glances shed
A halo round our home?

Oh! if we do, let thanks be poured
To Him who hath spared and given,
And forget not o'er the festive board
The mercies held from heaven.

Then a welcome and a cheer to the merry New Year,
While the holly gleams above us!
With a pardon for the foes who hate,
And a prayer for those who love us.

NEW YEAR'S SONG

They say the year is old and gray,
That his eyes are dim with sorrow;
But what care we, though he pass away?
For the New Year comes tomorrow.
No sighs have we for the roses fled,
No tears for the vanished summer;
Fresh flowers will spring where the old are dead,
To welcome the glad newcomer.

He brings us a gift from the beautiful land,
We see, in our rosy dreaming,
Where the wonderful castles of fancy stand
In magical sunshine gleaming.
Then sing, young hearts that are full of cheer,
With never a thought of sorrow;
The old goes out, but the glad young year
Comes merrily in tomorrow.

RING OUT THE OLD, RING IN THE NEW

Ring out wild bells, to the wild sky,
The flying cloud, the frosty light,
The year is dying in the night;
Ring out wild bells and let him die.

Ring out the old, ring in the new,
Ring happy bells across the snow,
The year is going, let him go;
Ring out the false, ring in the true.

Ring out the want, the care, the sin,
The faithless coldness of the times;
Ring out, ring out my mournful rhymes,
But ring the fuller minstrel in!

Ring out false pride in place and blood,
The civic slander and the spite;
Ring in the love of truth and right,
Ring in the common love of good.

Ring in the valiant man and free,
The larger heart, the kindlier hand;
Ring out the darkness of the land,
Ring in the Christ that is to be.

The Value of Leisure Time

Where they work much in gold the very dust of the room is carefully gathered up for the few grains of gold that may be thus saved. Let us learn from this the value of spare moments. Glean up its golden dust, economize with tenfold care those raspings and parings of existence, those leavings of days and bits of hours, so valueless singly, so inestimable in the aggregate, and you will be rich in leisure. Rely upon it, if you are a miser of moments, if you hoard up and turn to account odd minutes and half-hours and unexpected holidays and five-minute gaps while the table is spreading, your careful gleanings at the end of life will have formed a colossal and solid block of time and you will be wealthier in accomplishments than thousands whose time is all their own.

A NEW YEAR'S CHIME

Toll! toll! toll!
For the old year slowly dying,
Grim, gaunt, sere,
On the breast of time now lying.
Hopes of youth are fleeting,
Hearts with care are beating.
Ho! ye wardens of the bells,
Toll! toll! toll!
Toll for Earth's enticing fashion,
Toll for strife's unholy passion,
Toll for friendship unrequited,
Toll for hope's enchantments blighted,
Toll for love's fond pledges broken,
Toll for want and woe unspoken,
Toll for mourners sadly weeping,
Toll for sin's vast harvest reaping;
Toll! toll! toll!
Toll that, while the earth shall stand!
Sin and woe shall fill the land!
Toll! toll! toll!

Ring! ring! ring!
A welcome to the bright New Year!
Life, Hope, Joy,
On his radiant brow appears!
Hearts with love are thrilling,
Homes with bounty filling,
Ho! ye wardens of the bells,
Ring! ring! ring!
Ring for the Winter's bracing hours,
Ring for birth of Spring and Flowers,
Ring for Summer's fruitful treasure,
Ring for Autumn's boundless measure,
Ring for hands of generous giving,
Ring for vows of noble living,
Ring for truth of tongue or pen,
Ring for "Peace on earth, good-will toward men."
Ring! ring! ring!
Ring that this glad year may see
Earth's accomplished jubilee!
Ring! ring! ring!

THE NEW YEAR

Ring out, O bells, ring silver-sweet o'er hill and moor and fell!
In mellow echoes, let your chimes their joyful story tell.
Ring out, ring out, all jubilant, this joyous glad refrain;
A bright New Year, a glad New Year, hath come to us again.

Oh, who can say how much of joy within it
there may be
Saved for us who listen now to your sweet
melody?
Goodby, Old Year! Tried, trusty friend, thy
tale at last is told.
O New Year, write thou thine for us in lines
of brightest gold.

The flowers of spring must bloom at last, when
gone the winter's snow;
God grant that after sorrow past, we all some
joy may know.
Though tempest tossed our bark awhile on
life's rough waves may be,
There comes a day of calm at last, when we
the haven see.

Then ring, ring on, O pealing bells! There's
music in the sound.
Ring on, ring on, and still ring on, and wake
the echoes round,
The while we wish, both for ourselves and all
whom we hold dear
That God may gracious be to us in this the
bright New Year.

NEW YEAR'S EVE

Stay yet, my friends, a moment stay—
Stay till the good Old Year,
So long companion of our way,
Shakes hands, and leaves us here.
Oh stay, oh stay,
One little hour and then away.

The year, whose hopes were high and strong,
Has now no hopes to wake;
Yet one hour more of jest and song
For his familiar sake.
Oh stay, oh stay,
One mirthful hour and then away.

The kindly year, his liberal hands
Have lavished all his store.
And shall we turn from where he stands,
Because he gives no more?
Oh stay, oh stay,
One grateful hour and then away.

Days brightly came and calmly went,
While yet he was our guest;
How cheerfully the week was spent!
How sweet the seventh day's rest!
Oh stay, oh stay,
One gold hour and then away.

Even while we sing, he smiles his last
And leaves our sphere behind.
The good Old Year is with the past;
Oh be the New as kind!
Oh stay, oh stay,
One parting strain and then away

THE NEW YEAR

A song for the Old
While its knell is tolled,
And its parting moments fly!
But a song and a cheer
For the glad New Year
While we watch the Old Year die!
Oh! its grief and pain
Ne'er can come again,
And its cares lie buried deep;
But what joy untold
Doth the New Year hold,
And what hopes within it sleep.

A song for the Old
While its knell is tolled,
And the friends it gave so true!
But with hearts of glee,
Let us merrily
Welcome in the bright, bright New!
For the heights we gained,
For the good attained,
We will not the Old despise;
But a joy more sweet,
Making life complete,
In the golden New Year lies.

A song for the Old,
While its knell is tolled!
With a grander, broader zeal
And a forward view,
Let us greet the New,
Heart and purpose ever lead!
Let the ills we met
And the sad regrets
With the Old be buried deep;
For what joy untold
Doth the New Year hold
And what hopes within it sleep.

LEE'S BIRTHDAY

JANUARY 19

As the Civil War recedes in time, we recognize with increasing clearness the abilities and sterling character of the two great generals on opposing sides in that great conflict—Gen. Ulysses S. Grant, who commanded the Federal armies; and Gen. Robert E. Lee in command of the Confederate forces. Nearness in time prevents just appreciation of historical character, but as years pass whatever is of enduring worth in the lives of really great men comes into bold relief, just as distance lends a pleasing charm to rugged mountains rising above the plain; and we do well to interrupt the routine of school work with exercises commemorative of such personages for the teacher can always draw from the lives of such men lessons of lasting worth.

The Exercises

The room can be decorated with the national colors. Should you be able to secure a large picture of General Lee, it should be prominently displayed. In her opening remarks—very brief—the teacher will do well to emphasize the fact that—as is also the case with all great men whose birthdays we celebrate—Lee was noted for his stern devotion to duty as he saw it, and point out that there can be no noticeable success unless one makes duty the guide of action. Make that the central thought of the day. Mention that since the days of the Civil War, the soldiers of our united country have fought in Cuba, the Philippines, and in Europe. The music should consist of patriotic songs such as were appropriate for Lincoln and Washington Day celebrations.

Source of Material

Make extensive use of material already prepared in the Reference volumes. See the article, "Robert E. Lee" beginning on page 1611; also consult the article, "Civil War in America," beginning on Page 607. We have arranged other prose and poetical extracts that can be utilized.

HEROES ALL

Twin laurels to lay o'er the blue and the gray,
spread wreaths where our heroes rest;
Let the song of the North echo back from the
South for the love that is truest and best!
Twin wreaths for the tombs of our Grant and
our Lee, one anthem for Jackson and Meade,
And the flag above you is the banner for me—
one people in name and in deed.

Clasp hands o'er the graves where our laureled
ones lie—clasp hands o'er the gray and the
blue;
Today we are brothers and bound by a tie that
the years shall but serve to renew;
By the side of the Northmen who peacefully
sleep where the tropical odors are shed,
A son of the South his companionship keeps—
one flag o'er the two heroes spread.

Weave tokens of love for the heroes in blue,
weave wreaths for the heroes in gray;
Clasp brotherly hands o'er the graves that are
new—for the love that is ours today;
A trinity given to bless, to unite—three glorious
records to keep,
And a kinship that never a grievance shall
sever renewed where the brave are asleep!

Spread flowers today o'er the blue and the gray
—spread wreaths where our heroes rest;
Let the song of the North echo back from the
South for the love that is truest and best!
Twin wreaths for the tomb of our Grant and
our Lee, one hymn for your father and
mine!
Oh, the flag that you adore is the banner for
me, and its folds our dead brothers en-
twine.

—*S. E. Kiser.*

NOW ONE IN CASE OF WAR

Don't you hear the tramp of soldiers?
Don't you hear the bugles play?
Don't you see the muskets flashing
In the sunlight far away,
Don't you feel the ground all trembling
'Neath the tread of many fleet?
They are coming, tens of thousands,
To the army and the fleet.

LEE'S BIRTHDAY

Suggestive Program

I

The better rule is to judge our adversaries from their standpoint, not from ours.—*Lee.*

Song, "Dixie"
Essay, "Lee's Preparation for His Greatest Work"
Marse Robert's Asleep....*Valentine*
The Land Where We Were Dreaming .....*Lucas*
Essay, "Lee's Services to the Confederacy"
The Sword of Lee.....*Father Ryan*
The Blue and the Gray.....*Finch*
Song, "Old Kentucky Home"
Lee's Farewell Address to His Soldiers.
Essay, "The Years After the War"
The Better Way.....*Coolidge*
Confederate Memory Gems
Song, "Tenting on the Old Camp Ground"

II

Remember! we are one country now. Dismiss from your minds all sectional feeling and bring up your children to be above all, Americans.

How Firm a Foundation (Lee's favorite Hymn)
Nobility .....*Alice Cary*
Essay, "Lee's Ancestors"
The March of the Deathless Dead .....*Father Ryan*
Tributes to Lee
Song, "Maryland, My Maryland"
The Nineteenth of January
The Conquered Banner.....*Father Ryan*
Essay, "Why the North Loves Lee"
After Appomattox
Essay, "The Battle of Chancellorsville"
Song, "Star Spangled Banner"

They are Yankees, they are Johnnies,
They're for North and South no more;
They are one and glad to follow
When Old Glory goes before,
From Atlantic to Pacific,
From the Pine Tree to Lone Star,
They are gath'ring 'round Old Glory
And they're marching to the war.

Don't you see the harbors guarded
By those bristling dogs of war?
Don't you hear them growling, barking,
At the fleet beyond the bar?
Don't you hear the Jack Tars cheering,
Brave as sailor lads can be?
Don't you see the water boiling
Where the squadron puts to sea?

They are Yankees, they are Johnnies,
They're for North and South no more;
They are one, and glad to follow
When Old Glory goes before.
From Atlantic to Pacific,
From the Pine Tree to Lone Star,
They have gathered 'round Old Glory,
And they're sailing to the war.

Don't you hear the horses prancing?
Don't you hear the sabers clash?
Don't you hear the cannons roaring?
Don't you hear the muskets crash?
Don't you smell the smoke of battle?
Oh, you'll wish that you had gone,
When you hear the shouts and cheering
For the boys who whipped the Don!

There'll be Yankees, there'll be Johnnies,
There'll be North and South no more,
When the boys come marching homeward
With Old Glory borne before.
From Atlantic to Pacific,
From the Pine Tree to Lone Star,
They'll be one beneath Old Glory
After coming from the war.

After the Surrender. It was then that Lee showed his true greatness, for from the moment of his surrender he diligently strove by voice and pen and example to create harmony between the North and the South and to help in rebuilding the nation. To those who asked his opinion as to whether they should submit to the Federal authorities and take the required oath of allegiance, he unhesitatingly answered—"If you intend to reside in this country and wish to do your part in the restoration of your state and in the government of the country, which I think is the duty of every one, I know of no objection to your taking the oath."

Lee as College President. He said when he accepted the charge—"I have led young men of the South to battle; I have seen many of them die upon the field. I shall now devote my-

self to training young men to their duty in life." It was no easy task to re-establish an institution practically destitute of resources in a poverty-stricken community, struggling for a bare existence, after the ravages of war. But though the work was hard he took keen pleasure in seeing the institution grow under his hands, and, little by little, the college regain its prestige, while with the help of his daughters he made his new home a place of beauty, planting flowers about the little house and doing all in his power to make it attractive for his invalid wife. Thus for five years he lived far removed from the turmoil of public life, performing a constant public service by directing personal influence upon students who came under his charge, and by doing everything in his power to reunite the nation.

Tribute to Lee. "He was a foe without hate, a friend without treachery, a soldier without cruelty, and a victim without murmuring. He was a public officer without vices, a private citizen without wrong, a neighbor without reproach, a Christian without hypocrisy, and a man without guile. He was Cæsar without his ambition, Frederick without his tyranny, Napoleon without his selfishness, and Washington without his reward."

—*Benjamin Hill.*

Lee's Genius. "It is not easy to compare Lee with the great soldiers of former ages except as a strategist. In strategy it is certain that he stands in the front rank of the great warriors of the world. The impartial historian, in reviewing his campaigns and the difficult conditions with which he was always confronted, must at least admit that no commander could have accomplished more. The world places Lee by the side of its greatest captains, because, surrounded on all sides by conflicting anxieties, interests, and the gravity of the issues involved, he only surrendered his blood-stained, bullet-riddled banner after demonstrating that all had been done that mortal could accomplish. The profession of the soldier had been honored by his renown, the cause of education by his virtues, religion by his piety."

—*Fitzhugh Lee.*

Grant and Lee. "The contrast between them was mainly external. Both were modest and courageous; both were self-contained; each had his tongue and temper under complete self-control; each was essentially an American in his ideas and ideals; each fought for a principle in which he sincerely believed, and neither took the least delight in war. Had they met in times of peace, it is not probable that they would have become intimate friends, but it is certain that each would have respected, if not admired the other for his fine qualities, and this undoubtedly was their attitude towards each other from the beginning of their struggle."

LEE AT THE WILDERNESS BATTLE

(ADAPTED)

Dawn of a pleasant morning in May
Broke through the Wilderness cool and gray,
While perched in the tallest tree tops, the birds
Were caroling Mendelssohn's "Song Without Words."

Far from the haunts of men remote,
The brook brawled on with a liquid note;
And Nature, all tranquil and lovely, wore
The smile of the spring, as in Eden of yore.

Little by little as daylight increased,
And deepened the roseate flush in the East—
Little by little did morn reveal
Two long glittering lines of steel;

Where two hundred thousand bayonets gleam,
Tipped with the light of the earliest beam,
The faces are sullen and grim to see
In the hostile armies of Grant and Lee.

All of a sudden, ere rose the sun,
Pealed on the silence the opening gun—
A little white puff of smoke there came,
And anon the valley was wreathed in flame.

. . . . . .

The grand old leader rode to the space
Where Death and his victims stood face to face,
And silently waved his old slouched hat—
A world of meaning there was in that!
"Follow me! Steady! We'll save the day."
This was what he seemed to say.

. . . . . .

Seasons have passed since that day and year—
Again o'er the pebbles the brook runs clear,
And the field in a richer green is drest,
Where the dead of a terrible conflict rest.

Hushed is the roll of the Rebel drum,
The sabers are sheathed, and the cannons are dumb;
And Fate with her pitiless hand has furled
The flag that once challenged the gaze of the world;

But the fame of the Wilderness fight abides;
And down into history grandly rides,
Calm and unmoved as in battle he sat,
The gray-bearded man in the old slouched hat.

LINCOLN'S BIRTHDAY

February 12

Abraham Lincoln is a commanding character in American history. The service he rendered our country was so great and given at such a critical period, the success that attended his efforts so pronounced, the tragedy of his death so profound, that it is most appropriate that the schools of our land celebrate his birthday and from his life draw lessons of conduct. The day thus set aside is the twelfth of February. It is the first special day of the year, for New Year's Day is a community affair.

Room Decorations

A large picture of Lincoln placed on an easel, with the United States colors draped around it, should occupy a commanding position. Other pictures appropriate to the occasion would be those showing the Lincoln Monument at Springfield, Illinois, the new Lincoln Memorial at Washington, the White House, the log house where Lincoln was born, etc. One or two of the short and pithy sayings of Lincoln that appeal to the hearts of readers may be neatly written on the board.

The Teacher's Opening Remarks

The teacher, being the chairman of the exercises, is not expected to take an active part in them, except to preserve order, announce the parts, and see that they follow in due order. But it is appropriate for her to give a short talk—not over five minutes in length—immediately after the opening song. Her object is to draw an inspiring lesson from the life of Lincoln; one that may arouse in the pupils a desire to make their lives worthy. Many lessons can be drawn from this illustrious life. Let us take as an example the following:

In our favored land, poverty is no bar to success. Lincoln's boyhood days were days of pinching poverty. He knew what it was to go half barefooted in the winter, to shiver through the cold weather in thin clothing, to live in a cabin with one door, few windows, and cracks in the roof and walls through which the wind blew the rain and snow—yet he became president.

Now show how, because of his thirst for knowledge, unswerving love for his fellowman, etc., he was able to save his country. Make the remarks brief, use simple words, talk earnestly, and talk to the children—not to the grown-ups present.

Music

In all special-day exercises much should be made of the musical part of the program. The songs should be appropriate to the nature of the day. For Lincoln Day, patriotic American songs should be selected,—such as "Hail Columbia," "Columbia, the Gem of the Ocean," "The Star Spangled Banner," "Tramp, Tramp, Tramp, the Boys Are Marching," "The Battle Hymn of the Republic," etc. But any good ringing school songs would be in order.

The Paper

In most of these exercises, a paper forms an interesting part of the program. Have two pupils, a boy and a girl, prepare and read it. They come onto the platform together, stand side by side, and take turns in reading. Let us say the boy reads a paragraph about the boyhood of Lincoln; then the girl might read about his work as a clerk, his reputation for honesty, his love of reading, or his study for admission to the bar, etc. The boy might then read about his part in the Black Hawk War, his debate with Douglas, and so on alternately. One or two anecdotes about Lincoln might be worked in. The entire reading should not take more than ten minutes. Plan to have at least two declamations—an oration and

an essay—and several readings of prose extracts about Lincoln. These should be interspersed with music in the program. Walt Whitman's "Captain! My Captain!" and the new Lincoln play by John Drinkwater should be used or mentioned in some way in this program.

Materials for Use

Considerable material has been arranged in other volumes of this set, from which extracts can be taken for use in papers, essays, etc. The reference article on Lincoln in Vol. IV, page 1642, is very complete. An interesting story about Lincoln is given in Vol. IX, page 3790. Lincoln's Gettysburg speech is given in Vol. IX, page 3790. His Biographical chart is given in Vol. X, page 4214, and the graphic of his administration is given in the same volume, page 4069. We place on the following pages material gathered from many sources that can be used by teachers and pupils as a storehouse from which to draw material for papers, readings, declamations, etc.

What Others Say About Lincoln

HIS PERSONAL APPEARANCE

He was a very tall man: 6 feet four inches in height. His complexion was dark; his hair and beard black. Though lean and spare in appearance, he weighed about 180 pounds. He was a man of fine fiber, and possessed a brain of superior power, within the compass of a small but rather elongated skull. His movements were rather angular, but never awkward; and he was never burdened with that curse of many unfortunate geniuses—the dreadful oppression of petty self-consciousness.

—*Charles A. Dana.*

PERSONALITY OF LINCOLN

In manner he was always cordial and frank, and although he was not without dignity he made every person feel quite at ease. The first impression that a stranger would get of him in conversation, or on hearing him speak, was that that here was a kind, frank, sincere, genuine man of transparent truthfulness and integrity; and before Lincoln had uttered many words he would be impressed with his clear, good sense, his remarkably simple, homely, but expressive Saxon language, and next by his wonderful wit and humor. Lincoln was more familiar with the Bible than with any other book in the lan-

LINCOLN'S BIRTHDAY

Suggestive Program

Let us have faith that right makes might, and in that faith let us to the end dare to do our duty as we understand it.—*Lincoln.*

I.

Song, "Battle Hymn of the Republic" ..... *Howe*
Flag Salute
Lincoln ..... *Longfellow*
"Chalk Talk"—Drawing of cabin in which Lincoln was born with the story of his childhood.
O Captain! My Captain.. *Whitman*
Lincoln—From the Commemoration Ode..... *Harriet Monroe*
Essay, "The Boyhood of Lincoln"
Essay, "Lincoln's Rise to the Presidency"
Second Inaugural Address... *Lincoln*
Essay, "The Years in the White House"
The Moral Warfare..... *Whittier*

II.

Song, "Liberty's Banner"—(Music from Verdi's Anvil Chorus)
Patriotic Sons..... *Samuel F. Smith*
Quotations about Lincoln..... *C. E. Stedman*
Essay, "Lincoln's Kindness of Heart"
The Gettysburg Oration.... *Lincoln*
Lincoln—From the Commemoration Ode..... *Lowell*
On the Life Mask of Abraham Lincoln..... *Richard W. Gilder*
Selections from Abraham Lincoln ..... *R. H. Stoddard*
Lincoln's Grave.. *Maurice Thompson*
Conclusion of the Building of the Ship ..... *Longfellow*

LINCOLN'S EARLY HOME

guage; this was apparent both from his style, and from his illustrations which were often taken from that book. He verified the maxim that it is better to know thoroughly a few good books than to read many. —*Isaac N. Arnold.*

LINCOLN AS AN ORATOR

He began in a slow and hesitating way; but without any mistakes of language, dates, or facts. Gradually he warmed up with his subject, his angularity disappeared, and he passed into an attitude of unconscious majesty. Progressing with his theme, his words began to come faster, his face to light up with the rays of genius, and his arms and body to move in unison with his thoughts. His gestures would be called neither graceful nor yet ungraceful. They were the natural expressions of the man, and so perfectly adapted to what he was saying that anything different would have been quite inconceivable. Sometimes his manner was very impassioned, and he seemed transfigured with his subject. Then the inspiration that possessed him took possession of his hearers also. His words went to their hearts because they came from his heart. I have heard celebrated orators who could start thunders of applause without changing any man's opinion; Mr. Lincoln's eloquence was of a higher type which produced convictions in others, because of the conviction of the speaker himself.

—*Horace White.*

THE GREATNESS OF LINCOLN

We never had in public life a man whose sense of duty was stronger, whose bearing towards those with whom he came in contact, whether his friends or political foes, was characterized by a greater sense of fairness. And we never have had in public life a man who took upon himself so uncomplainingly the woes of the nation and suffered in his soul from the weight of them as he did. Not in all history is there a man who had such a mixture of farsightedness, of understanding of the people, of common sense, of high sense of duty, of power, of inexorable logic, and of consciousness of the goodness of God in the working out of righteousness in the result as had this great man. One cannot read of Abraham Lincoln without loving him. One cannot think of his struggles, of his life and its tragic end without weeping. One cannot study his efforts, his conscientious work, his heroism, his patriotism, and the burdens of bitter attack and calumny under which he suffered, and think of the place he now occupies in the history of this country, without a moral inspiration of the most stirring and intense character.

—Pres. W. H. Taft.

SOME SAYINGS OF LINCOLN

All that I am and all that I hope to be, I owe to my mother.

If you intend to go to work, there is no better place than right where you are.

I am not bound to win, but I am bound to be true; I am not bound to succeed, but I am bound to live up to what light I have.

You may fool all of the people some of the time; you may fool some of the people all of the time; but you cannot fool all of the people all of the time.

Having chosen our course without guile and with pure purpose, let us renew our trust in God and go forward without fear and with manly hearts.

Labor is prior to capital, which is only the fruit of labor and could never have existed first. Labor is the superior of capital and deserves much higher consideration.

Gold is good in its place; but loving, brave, patriotic hearts are better than gold.

Suspicion and jealousy never did help any man in any situation.

I do not wish to die until the world is better for my living.

When I am dead, I wish my friends to remember that I always plucked a thistle and planted a rose when in my power.

Poetical Selections

LINCOLN, BOY AND MAN

Our Lincoln, when he was a boy,
Was very tall and slim;
You can see I am just a little tall,
I wonder if I look like him?

Our Lincoln, when he was a boy,
Was very brave and very true;
Today I am just a little brave,
In this I am like our Lincoln too.

Our Lincoln, when he was man,
Was loved and honored everywhere;
I will be the man that Lincoln was;
To do this, I must now prepare.

LINCOLN

On the battlements of fame,
Raise a banner to his name.
Blazon it against the sky
Till the four winds passing by,
Shall proclaim o'er all the earth
Slavery's death and Freedom's birth;
And henceforth his name shall ye
Champion of Liberty.

Raise a monumental fame
To the hero slain,
Wide of base like pyramid,
Where the dead past shall be hid.
Found it deep and rear it high,
Point its apex to the sky
That the earth henceforth may see
Lincoln's shrine to Liberty.

Like the mightiest of earth
Came he with no pride of birth—
Like Elijah came he here,
Unannounced by sage or seer;
And from the lowliest abode
Came he like the Son of God—
Chosen for a mighty deed,
In the nation's direst need.

Yet it were but vain to trust,
Graven stone or brazen bust;
Proudest monuments decay,
Crumble, rust, and pass away;
But the oracles of time
Shall proclaim in every clime:
Lincoln—martyr of the free—
Lived and died for Liberty.

LINCOLN'S MONUMENT AT SPRINGFIELD, ILL.

STATESMAN, HERO, RULER, MARTYR

'Mid the names that fate has written
On the deathless scroll of time,
We behold the name of Lincoln,
Shining like a living flame;
'Mid the deeds the world remembers
(Deeds by dauntless heroes done)
We behold the deeds of Lincoln
Blazing like a brilliant sun;
'Mid the lives whose light illumines,
History's dark and dreadful page,
We behold the life of Lincoln
Lighting up an awful age;
When the storm of peril threatened
His loved land to o'erwhelm,
Safe the ship of state he guided,
With his hand upon the helm.
Statesman, ruler, hero, martyr—
Fitting names for him I say—
Wherefore let us all be brothers,
Love his memory today.

ABRAHAM LINCOLN

Ah, slow to smite and swift to spare,
Gentle and merciful and just!
Who in the fear of God, didst bear
The sword of power, a nation's trust!

In sorrow by thy bier we stand,
Amid the awe that hushes all,
And speak the anguish of a land
That shook with horror at thy fall.

Thy task is done; the bonds are free
We bear thee to an honored grave,
Whose proudest momument shall be
The broken fetters of the slave.

Pure was thy life; its bloody close
Hath placed thee with the sons of light,
Among the noble host of those
Who perished in the cause of right.

ABRAHAM LINCOLN

Some opulent force of genius, soul, and race,
Some deep life-current from far centuries
Flowed in his mind, and lighted his sad eyes,
And gave his name, among great names, high place.

But these are miracles we may not trace—
Nor say why from a source and lineage mean
He rose to grandeur never dreamt or seen!
Or told on the long scroll of history's space.

The tragic fate of one broad hemisphere
Fell on stern days to his supreme control,
All that the world and liberty held dear
Pressed like a nightmare on his patient soul.
Martyr beloved, on whom, when his life was done,
Fame looked, and saw another Washington.

WHEN LINCOLN DIED

When Lincoln died, a great soul passed from earth.
In him were strength and gentleness so mixed,
That each upheld the other. He was firm
And yet was kind; as tender as a child
And yet as iron-willed as Hercules.
His powers were almost limitless, and yet
His mercy was boundless as his power.
He was jovial, laughter-loving,
Still his heart was ever torn with suffering.
There was divine compassion in the man,
A God-like pity for his race.
The world saw the full measure of that love,
When Lincoln died.

LINCOLN'S FAVORITE HYMN

Oh, why should the spirit of mortal be proud!
Like a swift flitting meteor, a fast flying cloud,
The flash of the lightning, a break of the wave,
He passes from life to his rest in the grave.

The leaves of the oak and the willow shall fade,
Be scattered around and together be laid;
And the young and the old and the low and the high
Shall molder to dust and together shall lie.

The infant a mother attended and loved,
The mother that infant's affection who proved,
The father that mother and infant who blest,
Each, all, are away to their dwellings of rest.

The maid on whose cheek, on whose brow, in whose eye
Shone beauty and pleasure—her triumphs are by;
And the mem'ry of those who loved her and praised
Are alike from the minds of the living erased.

The peasant whose lot was to sow and to reap,
The herdsman who climbed with his goats up the steep,
The beggar who wandered in search of his bread,
Have faded away like the grass that we tread.

So the multitude goes—like the flower or weed—
That withers away to let others succeed;
So the multitude comes, even those we behold,
To repeat every tale that has often been told.

Yea, hope and despondency, pleasure and pain
Are mingled together in sunshine and rain;
And the smile and the tear, the song and the dirge,
Still follow each other like surge upon surge

ST. VALENTINE'S DAY

February 14

This day is not a legal holiday and is not generally observed in the schools, but in many primary schools it is made the occasion of a few simple exercises intended to interest the younger pupils. St. Valentine's Day is the survival, in modern times, of an extremely ancient spring festival, found in one form or another among nearly all primitive peoples, adopted and purified by the early church, and associated with an important event in the life of St. Valentine.

The wide-awake teacher utilizes this old festival to good advantage in her school work, making it the occasion for imparting a simple lesson on the beauty of loving service to others, expressions of affectionate regard that should exist between members of the home circle, teacher, pupils, and little playmates. The excellent suggestion has been made that preparatory work for this occasion form the "Busy Work" of the primary grades for days, and even weeks, immediately preceding the day itself. Let the little pupils make valentines. They can color pictures of birds and flowers, cut them out and paste them on sheets of paper, and cut hearts out of red paper, paste them onto white blotting paper to make ornamental blotters, pin cushions, pen wipers, and so on. All this interests the pupils and is preparatory to the simple exercises of the day.

These exercises will consist of music, a few recitations from poetical extracts, such as we have arranged, and a little talk by the teacher, telling the story of St. Valentine, who delighted—so it is said—to leave gifts of food and clothing for needy ones in such a way that they would not know who gave them: explaining that this is the reason we today give little tokens of regard. Then the little valentines are inspected and the best ones commented upon. In this way the day is made interesting and helpful to the younger pupils.

THE NIGHT HAS A THOUSAND EYES

The night has a thousand eyes,
And the day but one;
Yet the light of the bright day dies
With the dying sun.

The mind has a thousand eyes,
And the heart but one;
Yet the light of a whole life dies
When love is done.

—*F. W. Bourdillon.*

TO MY DAUGHTER

Her kiss is warm upon my cheek,
She is not coy nor shy;
Her arms were clinging round my neck
When she bade me good-bye.

She whispers soft her love for me,
And I tell her of mine;
Sweetheart, no other maid could be
So dear a Valentine.

She loves me more than all the world;
Yet sadly I foresee,
As time rolls on, some other swain
May be preferred to me.

Were she sixteen, instead of three,
This little Daughter, mine,
Another's vows might prove more dear
Than Papa's Valentine.

—*Walter Learned.*

MAMMA'S VALENTINE

Baby came toddling up to my knee,
His chubby features all aglow,
"'Dess I'se doin' to be 'oor beau,
See what 'oo dot from me!"
A valentine from my baby boy!
A crumpled sheet and a homely scrawl,
In a baby hand—that was all—
Yet it filled my heart with joy.

Broken my heart and white my hair,
And my mother's eyes are used to weep:
My little boy is fast asleep
In the churchyard over there.
What shall be mamma's valentine?—
The spirit touch of the baby hand,
A baby voice from the spirit land
Singing a song divine.

—*Eugene Field.*

WASHINGTON'S BIRTHDAY

February 22

This is one of our oldest national holidays. It was set aside—in remembrance of Washington—by act of Congress in 1799, and it was first observed in 1800. It will be noticed that it comes just ten days after Lincoln's birthday. Sometimes the two days are celebrated together and the celebrations are much the same in nature.

Room Decoration

A large picture of Washington, which can be found in almost every community, placed on an easel or hung on the board in a central position, and surrounded by national colors, forms the most prominent object of decoration. Other appropriate pictures would be the Washington Monument, in Washington, D. C., Mount Vernon, Washington Crossing the Delaware and pictures of Revolutionary scenes. The following parallel columns, outlining the lives of Washington and Lincoln, may be neatly written on the board, one on each side of the central picture, with the common characteristics at the bottom.

WASHINGTON

To one was accorded the rare honor of redeeming his country from a foreign foe.

Washington gave us a country

Washington fought that we might have peace, liberty, and happiness.

Washington struck the scepter from a tyrant's hand.

Washington consecrated a country.

Washington, the father of our country.

Washington, the general without fear or reproach.

Washington, the lion-hearted.

Music

The same general class of songs should be selected as for the Lincoln Day Exercises. While patriotic songs should form the main part of the musical program, still any good school songs are appropriate. Be sure and provide plenty of them for any of these exercises.

The Central Thought

The teacher in her few introductory remarks might refer to the parallel statements on the board just mentioned. Then, very briefly and earnestly (the entire talk should not exceed five minutes) let her set forth the central thought, which the exercises are intended to emphasize. Many lessons could be drawn from the life of Washington. Let us take one as a sample:

> Washington is beloved by all of his countrymen, and is one of the few men who will not be forgotten by the world because of his sincere, manly character and his intense pure love of country. We should all be proud of our country and her institutions. To be active in loyal service to our country and in loving service to our fellowmen is one of the highest ideals of conduct that we can form.

LINCOLN

To the other was the glory of saving it from its own household.

Lincoln saved it.

Lincoln, that these inestimable blessings might be ours without molestation.

Lincoln struck the fetters from the enslaved.

Lincoln hallowed it.

Lincoln, the savior of it.

Lincoln, the statesman without guile or shame.

Lincoln, the loving-hearted.

Each was in earnest and devoted himself to his task and did it well. Each was a good man with trust in a higher power. Each was patriotic. Each was a hero in great and small things. Each ruled his own spirit as he ruled the people.

WASHINGTON'S BIRTHDAY

Suggestive Program

"I hope I shall always possess firmness and virtue enough to maintain what I consider the most enviable of all titles, the character of an Honest man."

I.

Song—
"Columbia, the Gem of the Ocean"
Roll Call—Quotations from Washington, including Rules of Conduct.
Flag Salute
George Washington. . *J. H. Ingham*
Essay—"The Boyhood and Youth of Washington"
Essay—"History of the Flag"
Hatchet Drill
Essay—"The Winter at Valley Forge"
Washington—From the Commemoration Ode. . . . . *Harriet Monroe*
Minuet, by Pupils in colonial costume
Song, "America"

II.

Song, "Hail Columbia"
Unveiling of Picture or Bust of Washington
Washington. . . . . *James B. Hope*
Tableau, "George Washington and the Cherry Tree"
Essay, "Washington, the President"
Washington's Statue. . . . . .
. . . . . *H. T. Tuckerman*
March—
(The pupils laying flowers before the picture or bust)
Song of a Thousand Years

QUOTATIONS ABOUT WASHINGTON

An Englishman by race and lineage, Washington incarnated in his own character every best trait and attribute that have made the Anglo-Saxon name a glory to its children, and a terror to its enemies throughout the world. But he was not so much an Englishman that, when the time came for him to be so, he was not ever more an American; and in all that he was and did, a patriot so exalted, and a leader so wise and good that what men called him, when he came to be inaugurated as the first president of the United States, the civilized world has not since then ceased to call him—The Father of his Country.

—Bishop H. C. Potter.

The name of Washington is intimately blended with whatever belongs most essentially to the prosperity, the liberty, the free institutions, and the renoun of our country. That name was a power to rally a nation in an hour of thick-thronging public disasters and calamities; that name shone amid the storm of war, a beacon light to cheer and guide the country's friends; it flamed, too, like a meteor to repel her foes. That name, in the days of peace, was a loadstone, attracting to itself a whole people's confidence, a whole people's love, and the whole world's respect.

—Daniel Webster.

The peculiarity and strength of Washington's character and the key to his success is the great self-possession and calmness that enabled him to judge and to act with foresight and confidence impossible to men of equally forcible traits who were less disciplined and self-controlled. Other men have had a great military genius, more intellectual capacity, more sympathetic influence over men, but of him it is to be said, "Better is he that ruleth his own spirit than he that taketh a city."

—Rose Terry Cooke.

There is something unique in Washington's character. Most of the great men in history—the founders of religions, the lawgivers, the empire-builders—appear superhuman. In Washington we find a man who seemed hardly above the average. He does not appear so even in the legends that cling to his memory. Yet he accomplished a work which bids fair to last to all future time. It was accomplished by a combination of unselfish virtues, faithful attention to duty, and of obedience to the dictates of humanity.

WASHINGTON AND LINCOLN

Washington and Lincoln—their names are inseparably associated in the minds of a grateful republic, and their fame is forever united in the annals of the world. Each was patriotic: their country called them, and they obeyed the call to the sacrifice of any other ambition. Each was a hero in great things as well as in small things. They ruled their own spirit as they ruled the nation. These things may be enough for us as a younger generation to copy

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MOUNT VERNON, THE HOME OF WASHINGTON

and imitate: Earnestness, uprightness, patriotism, heroism. If these four live in our own minds and hearts, to inspire, mature and make better men and women, better citizens, Washington and Lincoln will not have lived in vain.

THE SAYINGS OF WASHINGTON

It is not for man to scan the wisdom of Providence.

Men, in most cases, are governed first by what they feel and next by what they hope.

Do not conceive that fine clothes make fine men any more than fine feathers make fine birds.

Happiness depends more upon the internal frame of a person's own mind than on the externals of the world.

To speak evil of any one, unless there are unequivocal proofs of their deserving it, is an injury for which there is no adequate reparation.

Let your judgment always balance well before you decide; and even then, where there is no occasion for expressing an opinion, it is best to be silent, for there is nothing more certain than that at all times it is more easy to make enemies than friends.

Be courteous to all, but intimate with few; and let those few be well tried before you give them your confidence. True friendship is a plant of slow growth and must undergo and withstand adversity before it is entitled to the appellation.

WASHINGTON'S FAREWELL TO HIS ARMY

With a heart full of love and gratitude, I now take my leave of you, most devoutly wishing that your latter days may be as prosperous and happy as your former days have been glorious and honorable. I can not come to each of you to take my leave, but shall be obliged if each of you will come and take my hand.

MY HATCHET

Once I had a little hatchet
That I cut from maple wood;
I decked it out with ribbon:
Beautiful, bright, and good.

And I put it on a bracket,
And I said that it should stand
To remind me of a hatchet
That belonged to a great man.

A great man whom we call "Father"
And who would never tell a lie,
And who made a great commander
When we fought for liberty.

That great man we all should know him,
For his name was Washington,
And he is first among our loved ones
In the hearts of his countrymen.

And like his, shall be my hatchet,
Like a bright and gleaming star;
Leading ever onward, upward,
Where only truthful spirits are.

THE GOOD OLD TIMES

When Washington was President,
He saw full many an icicle;
But never on a railroad went,
And never rode a bicycle.
He read by no electric lamp,
Nor heard about the Yellowstone;
He never licked a postage stamp,
And never saw a telephone.
His trousers ended at the knees,
By wire he could not send a dispatch;
He filled his lamp with whale-oil grease,
And never had a match to scratch.
But in these days, it's come to pass,
All work is with such dashing done—
We've all those thing; but then, alas!
We seem to have no Washington.

This was the men God gave us when the hour
Proclaimed the dawn of Liberty begun;
Who dared a deed, and died when it was done;
Patient in triumph, temperate in power,—
Not striving, like the Corsican, to tower
To Heaven, nor like great Philip's greater son
To win the world and weep for worlds unwon,
Or lose the star to revel in the flower.
The lives that serve the eternal verities
Alone do mold mankind. Pleasure and pride
Sparkle awhile and perish, as the spray,
Smoking across the crests of cavernous seas
Is impotent to hasten or delay
The everlasting surges of the tide.

—*John H. Ingham.*

WASHINGTON—THERE IS BUT ONE

Where may the wearied eye repose
When gazing on the Great;
Where neither guilty glory glows
Nor despicable state?
Yes—one—the first—the last—the best—
The Cincinnatus of the West,
Whom envy dare not hate,
Bequeath the name of Washington,
To make men blush there was but one!

—*Lord Byron.*

INFLUENCE OF WASHINGTON

Simple and brave, his faith awoke
Ploughmen to struggle with their fate;
Armies won battles when he spoke,
And out of chaos sprang the state.

—*Robert Bridges.*

WASHINGTON'S FIRST INAUGURAL ADDRESS

CROWN OUR WASHINGTON

Arise,—'tis the day of our Washington's glory,
The garlands uplift for our liberties won;
Forever let youth tell the patriot's story,
Whose sword swept for freedom the fields of the sun!
Not with gold nor with gems,
But with evergreens vernal,
And the banner of stars that the continents span,
Crown we the chief of the heroes eternal,
Who lifts his sword for the birthright of man!

He gave us a nation; to make it immortal
He laid down for freedom the sword that he drew,
And his faith leads us on through the uplifting portal
Of the glories of peace and our destinies new.
Not with gold nor with gems,
But with evergreens vernal
And the flag that the nations of liberty span,
Crown, crown him the chief of the heroes eternal,
Who laid down his sword for the birthright of man!

Lead, face of the future, serene in thy beauty,
Till o'er the dead heroes the peace star shall gleam,
Till right shall be might in the counsels of duty,
And the service of man be life's glory supreme.

Not with gold nor with gems,
But with evergreens vernal,
And the flag that the nations in brotherhood span,
Crown, crown we the chief of the heroes eternal,
Whose honor was gained by his service to man.

HONOR TO WASHINGTON

Honor to Washington, soldier the bravest,
Hero triumphant in warfare's grim art,
Pillar of safety, in danger the gravest,
Idol of every American heart,
Winning a deathless name,
Crowned with eternal fame,
Looming more grandly as ages shall glide,
Blazoned on starry flag,
Graven on mountain crag,
Washington, ever America's pride.

Honor to Washington, statesman the ablest,
Guardian of Nation in infancy's days
Founder of freedom on basis the stablest,
Guide to our footsteps through perilous ways.
Girt now, with giant might,
Dowered with happiest plight,
Long may his country in glory abide,
Voicing in thunder sound,
Echoing the world around,
Washington, ever America's pride.

Honor to Washington, patriot the purest,
Servant whose service was free as the air,
Later, resigning a grasp that was surest,
Model immortal of virtues most rare.
Join them in loudest shout,
Fling all your banners out,
Roll your glad anthems o'er continents wide,
Swelling in chorus grand,
Reaching most distant land,
Washington, ever America's pride.

OUR WASHINGTON

O son of Virginia, thy mem'ry divine
Forever will halo this country of thine.
Not hero alone in the battle's wild strife,
But hero in every detail of thy life.
So noble, unselfish, heroic and true,
A God-given gift to thy country were you;
And lovingly, tenderly guarding thy shrine,
Columbia points proudly and says, "He is mine."

Thy courage upheld us, thy judgment sustained,
Thy spirit stood proof when discouragement reigned.
Thy justice unerring all bias withstood;
Thy thought never self but thy loved country's good.
And thy country will never till time is no more,
Cease to cherish the sleeper on yon river's shore;
And ev'ry fair daughter and ev'ry brave son
She will tell of the greatness of her Washington.

O hero immortal! O spirit divine!
What glory eternal, what homage is thine!
Forever increasing will be thy renown,
With the stars of Columbia that gleam in thy crown.
The God who guards liberty gave thee to earth,
Forever we'll halo thy heaven-sent birth.
E'en heaven itself has one gladness the more
That our hand shall clasp thine on eternity's shore.

Then sleep, sweetly sleep, by the river's calm run,
Thy fame shall live on in the land thou hast won.
To the Potomac's soft music then slumber serene,
The spirit of freedom will keep the spot green;
And so long as time echoes the hour of thy birth,
We will pay loving tribute and praise to thy worth,
And pledge to keep spotless the freedom you gave
And the land that is hallowed by Washington's grave.

—*Eliza W. Durbin.*

LONGFELLOW DAY

February 27

Of late years it has become customary to commemorate the birthdays of eminent poets. Such occasions serve two purposes. They are intended to acquaint pupils with the lives and works of men whom the literary world delights to honor; and, further, since the exercises consist so largely of extracts drawn from literary masterpieces, the pupils glimpse somewhat the beauties of true poetical literature. Since it would require too much space to give appropriate programs for all such occasions, we select one eminent writer—Henry W. Longfellow—making suggestions and arranging selections that will enable the teacher to prepare a program for his birthday. From this as a model, programs for other Author Days can be arranged.

Henry W. Longfellow

By many, especially European scholars, Longfellow is regarded as the most distinctive American poet, and his birthday—February 27—is quite generally commemorated in schools by special exercises. If a large picture of Mr. Longfellow can be obtained, let it be displayed on the board back of the teacher's desk. The dates of the poet's birth and of his death may be placed perhaps on one side of the picture. On the other side the titles of some of his most prominent writings,—such as *Evangeline, Hiawatha, Courtship of Miles Standish,* etc. In her brief opening remarks, the teacher explains why we celebrate Longfellow's birthday: because he is such a commanding figure in American literature.

Exercises

An essay—or paper—setting forth the main outlines of Longfellow's life should be read. Material for such purposes can be found in the article, Longfellow, in Vol. IV, page 1697, of the reference volumes, and an excellent outline of his biography found in Vol. 10—page 4217.

Let a pupil take one of the principal poems placed on the board—say *Evangeline*—and give a brief synopsis of its parts. In addition to these special parts, readings and recitations selected from the shorter poems, such as we have arranged in the pages that follow, will complete the program. No special musical program is necessary. Any good ringing school songs will be appropriate. The poems that follow were all written by this eminent poet.

THE SOUND OF THE SEA

The sea awoke at midnight from its sleep,
And round the pebbly beaches far and wide
I heard the first wave of the rising tide
Rush onward with uninterrupted sweep;
A voice out of the silence deep,
A sound mysteriously multiplied
As of a cataract from the mountain side,
Or roar of wind upon a wooded steep.
So comes to us at times, from the unknown
And inaccessible solitudes of being,
The rushing of the sea-tides of the soul;
And inspirations, that we deem our own,
Are some divine foreshadowing and far-seeing,
Of things beyond our reason or control.

THE LOT OF MAN

As a fond mother, when the day is o'er
Leads by the hand her little child to bed,
Half willing, half reluctant to be led,
And leave his broken playthings on the floor,
Still gazing at them through the open door,
Nor wholly reassured and comforted
By promises of others in their stead,
Which, though more splendid, may not please
him more:
So Nature deals with us, and takes away
Our playthings one by one, and by the hand
Leads us to rest so gently that we go
Scarce knowing if we wish to go or stay,
Being too full of sleep to understand
That the unknown far transcends what we
know.

LONGFELLOW'S HOME

HAROUN AL RASCHID

One day, Haroun Al Raschid read
A book wherein the poet said:—

"Where are the kings, and where the rest
Of those who once the world possessed?

"They are gone with all their pomp and show,
They're gone the way that thou shalt go.

"O thou who choosest for thy share
The world and what the world calls fair,

"Take all that it can give or lend,
But know that death is at the end!"

Haroun Al Raschid bowed his head;
Tears fell upon the page he read.

SUNDOWN

The summer sun is sinking low;
Only the tree-tops redden and glow;
Only the weathercock on the spire
On the neighboring church is a flame of fire;
All is in shadow below.

O beautiful, awful summer day,
What hast thou given, what taken away?
Life and death, and love and hate,
Homes made happy or desolate,
Hearts made sad or gay.

On the road of life one milestone more!
In the book of life one leaf turned o'er!
Like a red seal is the setting sun
On the good and the evil men have done,—
Naught can today restore.

LONGFELLOW IN HIS STUDIO

LONGFELLOW'S BIRTHDAY

Suggestive Program

The heights by great men reached and kept
Were not attained by sudden flight,
But they while their companions slept,
Were toiling upward in the night.
—*Longfellow.*

I.

Song, "O Hemlock Tree".....
.....*Longfellow*
Longfellow.....*Katherine Lee Bates*
To H. W. L.....*Lowell*
A Psalm of Life.....*Longfellow*
The Wreck of the Hesperus....
.....*Longfellow*
Essay, "The Boy Longfellow"
The Poet and the Children.....
.....*Whittier*
The Village Blacksmith..*Longfellow*
Dramatization from Evangeline
Longfellow.....*William Winter*
The Luck of Edenhall...*Longfellow*
Longfellow...*Paul Hamilton Hayne*

II.

Song, "The Bridge"....*Longfellow*
Whose Shall the Welcome Be?
.....*Elizabeth Stuart Phelps*
Longfellow.....*H. C. Bunner*
The Bell of Atri.....*Longfellow*
Excelsior .....*Longfellow*
Essay, "The Friend of Children"
Longfellow Dead.....
.....*Paul Hamilton Hayne*
In Memoriam.....*Austin Dobson*
Dramatization from Miles Standish
The Old Clock on the Stairs....
.....*Longfellow*
The Skeleton in Armor..*Longfellow*
Vale et Salve....*Edith M. Thomas*

THE WIND OVER THE CHIMNEY

See, the fire is sinking low,
Dusky red the embers glow,
While above still I cower,
While a moment more I linger,
Though the clock with lifted finger,
Points beyond the midnight hour.

Sings the blackened log a tune
Learned in some forgotten June
From a school-boy at his play,
When they both were young together,
Heart of youth and summer weather
Making all their holiday.

And the night-wind rising, hark!
How above there in the dark,
In the midnight and the snow,
Ever wilder, fiercer, grander,
Like the trumpet of Iscander,
All the noisy chimneys blow!

Every quivering tongue of flame
Seems to murmur some great name,
Seems to say to me, "Aspire!"
But the night-wind answers: "Hollow
Are the visions that you follow,
Into darkness sinks your fire!"

Then the flicker of the blaze
Gleams on volumes of old days,
Written by masters of the art,
Loud through whose majestic pages
Rolls the melody of ages,
Throb the harp-strings of the heart.

And again the tongues of flame
Start exulting and exclaim;
"These are prophets, bards, and seers,
In the horoscopes of nations,
Like the ascending constellations,
They control the coming years."

THE ARROW AND THE SONG

I shot an arrow into the air,
It fell on earth, I knew not where;
For, so swiftly it flew, the sight
Could not follow it in its flight.

I breathed a song into the air,
It fell on earth, I knew not where;
For who has sight so keen and strong,
That it can follow the flight of a song?

Long, long afterwards, in an oak
I found the arrow still unbroke;
And the song from beginning to end,
I found again in the heart of a friend

THE VILLAGE BLACKSMITH

Under a spreading chestnut-tree
The village smithy stands;
The smith, a mighty man is he,
With large and sinewy hands;
And the muscles of his brawny arms
Are strong as iron bands.

His hair is crisp, and black and long,
His face is like the tan;
His brow is wet with honest sweat,
He earns what'er he can,
And looks the whole world in the face,
For he owes not any man.

Week in, week out, from morn till night,
You can hear his bellows blow;
You can hear him swing his heavy sledge,
With measured beat and slow,
Like a sexton ringing the village bell,
When the evening sun is low.

And children coming home from school
Look in at the open door;
They love to see the flaming forge,
And hear the bellows roar,
And catch the burning sparks that fly
Like chaff from a threshing-floor.

Toiling,—rejoicing,—sorrowing,
Onward through life he goes;
Each morning sees some task begin,
Each evening sees it close;
Something attempted, something done,
Has earned a night's repose.

Thanks, thanks to thee, my worthy friend,
For the lesson thou hast taught!
Thus at the flaming forge of life
Our fortune must be wrought;
Thus on its sounding anvil shaped
Each burning deed and thought.

A DAY OF SUNSHINE

O gift of God! O perfect day;
Whereon shall no man work, but play;
Wherein it is enough for me,
Not to be doing, but to be.

Through every fiber of my brain,
Through every nerve, through every vein,
I feel the electric thrill, the touch
Of life, that seems almost too much.

I hear the wind among the trees
Plating celestial symphonies;
I see the branches downward bent,
Like keys of some great instrument.

And over me unrolls on high
The splendid scenery of the sky,
Where through a sapphire sea the sun
Sails like a golden galleon.

Towards yonder cloud-land of the West,
Towards yonder Islands of the Blest,
Whose steep sierra far uplifts
Its craggy summits white with drifts.

Blow winds! and waft through all the room
The snow-flakes of the cherry-blooms!
Blow winds! and bend within my reach
The fiery blossoms of the peach!

O Life and Love! O happy throng
Of thoughts, whose only speech is song!
O heart of man! canst thou not be
Blithe as the air is, and as free?

SNOW-FLAKES

Out of the bosom of the air,
Out of the cloud-folds of her garments
shaken,
Over the woodlands brown and bare,
Over the harvest-fields forsaken,
Silent and soft, and slow
Descends the snow.

Even as our cloud-fancies take
Suddenly shape in some divine expression,
Even as the troubled heart doth make
In the white countenance confession,
The troubled sky reveals
The grief it feels.

This is the poem of the air,
Slow in silent syllables recorded,
This is the secret of despair,
Long in its cloudy bosom hoarded,
Now whispered and revealed
To wood and field.

DAYLIGHT AND MOONLIGHT

In broad daylight and at noon
Yesterday I saw the moon
Sailing high but faint and white
As a school-boy's paper kite.

In broad daylight, yesterday,
I read a poet's mystic lay;
And it seemed to me at most
As a phantom or a ghost.

But at length the feverish day
Like a passion died away,
And the night, serene and still,
Fell on village vale, and hill.

Then the moon in all her pride,
Like a spirit glorified,
Filled and overflowed the night
With revelations of her light.

And the Poet's song again
Passed light music through my brain;
Night interpreted to me
All its grace and mystery.

EASTER

The First Sunday After the First Full Moon After the 21st of March

This is an extremely old Spring Festival. It was also the ancient Jewish Passover feast, and has been preserved by the Church and set aside to commemorate the Christian belief in the Resurrection. But there is interwoven in its celebration many quaint survivals of customs once observed by people in different sections about which we need not concern ourselves. Being of such general observation it is well to have special exercises in school to impress on pupils the deeper meaning of the day. It marks the opening of a new chapter in the book of Nature. New vegetation is clothing the earth with green grass and opening flowers, with budding trees and the songs of home-coming birds.

It is the beginning of a new year of joy and sunshine after the dreary winter. And so each one should make it the beginning of a new life, a more determined effort to deserve whatever of good comes to him. The principal room decoration should be flowers. Encourage the pupils to bring them. Potted flowers can be brought, and bouquets placed in vases and glasses scattered about the room. Let the teacher remind the pupils that flowers are beautiful symbols of the opening year, the new life of beauty and joy that the day commemorates. We have arranged a few verses that can be used for recitations. Interest of the exercises can be increased by the teacher explaining—very briefly—the origin of some Easter customs—such as the use of eggs—significant of the origin of life, or of the universe; or the wearing of something new, significant of the new life of the year. We have also arranged a number of verses that can be used for recitations.

IN THE SPRING

Have you seen an apple orchard in the spring?
In the spring?
An English apple orchard in the spring?
When the spreading trees are hoary,
With their wealth of promised glory,
And the mavis sings its story,
In the spring.

Have you plucked the apple blossoms in the spring?
In the spring?
And caught the subtle odors in the spring?
Pink buds pouting at the light,
Crimpled petals baby-white,
Just to touch them a delight—
In the spring.

Have you walked beneath the blossoms in the spring?
In the spring?
Beneath the apple blossoms in the spring?
When the pink cascades are falling,
And the silver brooklets brawling,
And the cuckoo bird soft calling,
In the spring.

If you have not, then you know not, in the spring,
In the spring.
Half the color, beauty, wonder of the spring,
No sweet sight can I remember
Half so precious, half so tender,
As the apple blossoms render
In the spring.

—*William Martin.*

THE LITTLE PLANT

In the heart of a seed
Buried deep, so deep,
A dear little plant
Lay fast asleep.

"Wake," said the sunshine,
"And creep to the light,"
"Wake," said the voice
Of the raindrops bright.

The little plant heard,
And it rose to see
What the wonderful
Outside world might be.

SUGGESTIVE PROGRAM FOR EASTER

I

I think of the garden after the rain;
And hope to my heart comes singing,
"At morn the cherry blooms will be white,
And the Easter bells be ringing."

Song, "Come Ye Saints".....*Kelly*
Essay, "What the Name Easter Means"
The Easter Flower...*Philips Brooks*
Reading, "The First Easter" ..... *Luke* XXIV
The Song of the Lilies..... .....*Lucy Wheelock*
Essay, "The Easter Lily"
Nature's Easter Music.*Lucy Larcom*
How the Date for Easter is Determined
Essay, "Signs of New Life in Nature"
Essay, "How the Butterfly Symbolizes the Eastern Lesson"
The Voice of Spring.....*Hemans*
The Spring Is Here.....*Bryant*
The Year's at the Spring..*Browning*

II

Song, "Christ the Lord is Risen Today" .....*Wesley*
The Lily of Resurrection..... .....*Lucy Larcom*
The First Easter.....*John* XX 1-18
Essay, "The True Significance of Easter"
Essay, "The Easter Lesson as Shown by a Bulb"
At Easter Time....*Lucy Wheelock*
Essay, "How We Observe Easter"
Spring .....*Longfellow*
Essay, "How the Ancients Accounted for the New Life in Nature—the Story of Prosperpina"
Essay, "The Return of the Birds"
April .....*Whittier*

A NEW BEGINNING

Every day is a new beginning,
Every morn is the world made new.
Ye who are weary of sorrow and sinning,
Here is a beautiful hope for you—
A hope for me and a hope for you.

All the past things are past and over,
The tasks are done and the tears are shed;
Yesterday's errors let yesterday cover,
Yesterday's wounds which smarted and bled
Are healed with the healing which night has shed.

Yesterday now is part of forever,
Bound up in a sheaf, which God holds tight,
With glad days and sad days, and bad days which never
Shall visit us more with their bloom and blight,
And fulness of sunshine, or sorrowful night.

Let them go, since we can not relieve them,
Cannot undo and cannot atone;
God in His mercy receive, forgive them;
Only the new days are our own,
Today is ours, and today alone.

Here are the skies all burnished brightly,
Here is the spent earth, all re-born;
Here are the tired limbs, springing lightly
To face the sun and to share with the morn
In the chrism of dew and the cool of morn.

Every day is a fresh beginning;
Listen, my soul, to the glad refrain,
And spite of old sorrow and older sinning,
And puzzles forecasted and possible pain,
Take heart with the day and begin again.

—*Susan Coolidge.*

EASTER

No more significant, spontaneous, or universally attractive festival has ever been instituted than that which celebrates the return of spring, the budding of leaves and flowers. There is good cheer in the sight of flowers lifting their faces once more towards the sunlight, after the frosts and storms of winter. The swelling seeds and changing tints of green give promise of the coming harvests; the songs of birds and the humming of the bees remind us of the rising tide of life that surrounds us and through countless channels is rushing onward with the pulse of recurring years. In all this stir of creative energy, this bursting of winter's fetters and the renewal of life's struggle for undisputed supremacy, we feel a kindling interest and secret joy. So when it is winter in your life, snowbound and icebound, frozen up and frozen in, pull out the full organ stop of your soul, and let the music out, for there's a spring coming.

THIS IS THE MESSAGE OF EASTER TO YOU.

EGG ROLLING ON THE WHITE HOUSE LAWN

EGG ROLLING

One of the annual sights in the city of Washington is Easter egg rolling on the White House grounds, on Easter Monday, in which several thousand children usually take part. The game is played in pairs, each player having one egg. These are rolled down hill, the unbroken egg taking its rival, if the latter is cracked. This custom probably came from Germany, where at Easter time egg rolling is practiced on tracks made of sticks, laid side by side. In Germany the sport begins Easter eve at midnight, and lasts about three hours. Apples and little round cakes are rolling as well as eggs. In Bohemia, children roll eggs in a row, starting them all at once, and watching to see which will reach the bottom of the hill first. In the north of England, eggs are used in playing hand-ball on Easter Day.

THE EASTER RABBIT

At first thought it seems strange that the rabbit or hare should be associated with Easter. Yet so it is and rabbits either living or made of cloth and stuffed with wool are given as presents and are recognized as symbols appropriate to Easter. The explanation of this quaint custom is of great antiquity. The name of the rabbit or hare in Ancient Egypt also meant to open, and thus was used as a symbol of that spring festival that opened a new year of life and hope. And from Egypt this old custom appears to have spread over the earth. Today we still celebrate the spirit of this old belief in our Easter Day celebration.

BIRD AND ARBOR DAY

Originally this special day was known simply as Arbor Day. It is a day in late April or early May, set aside in most states as a legal holiday. The primary purpose was to emphasize the importance of tree planting. But coming as it does when the annual life cycle begins to run, it has assumed the function of a holiday, the school exercises of which are intended to impress on the pupils the deeper lessons of nature study. The point of view is no longer simply tree culture—though that remains most important—but it embraces all the more pleasant out-door forms of life, including birds and flowers. These subjects are now a part of the day's exercises, and the name is now generally known as Bird and Arbor Day.

The Central Thought of the Day

The most valuable lessons of nature study cannot be imparted by means of text books. From text books we learn how to analyze and classify flowers and to tell with scholarly precision the characteristics of each; but of far greater value is the ability to see in flowers the spirit of nature, and to open our hearts to the beauty of the out-of-doors. To be able to complete the outline study of trees is not so important as to see in leaves and blossoms and fruit the evidence of infinite design.

In short, the deeper lessons of nature study are to broaden our mental vision, to expand the horizon of our thoughts and enable us to see on every hand the evidence that Infinite Intelligence guiding all things. This is the central thought of the day, and the special exercises—the songs and recitations—aside from the great practical value of tree planting, are intended to foster this central thought. The teacher with intuition enough to grasp this point of view can make Arbor Day one of the most important special days of the year, lifting the thought to higher planes of feeling.

Material for Recitations, Etc.

Nearly fifty pages of excellent material for papers and readings have been given in Vol. VIII of the Study Guides, Nature's Lessons bound in White, in Green, in Gold, and in Brown. Teachers should make extensive use of this store of material, since every page emphasizes the deeper lesson of nature study. An interesting paragraph on the Big Trees of California is found on page 3930, and one on Petrified Forests on page 3914. We have arranged the material. To make the exercises a success, the teacher must grasp the right point of view. If she can put enthusiasm into her work, and earnestly tries to meet the requirements of the service demanded of a true teacher, she can make Arbor Day one of the red-letter days of the school year.

Room Decoration and Music

Certain parts of the exercises having to do with tree planting are necessarily held out of doors. But a part may be held in the school room, especially if the weather is unfavorable. Spring flowers are appropriate, and the room should be decorated with flags and bunting. Several canary birds placed in suitable positions around the room emphasize the bird feature of the day. Pictures of striking natural scenes, — Yellowstone Park scenes, the Grand Canyon, Niagara Falls, etc.—are suitable and can nearly always be borrowed for the occasion. In various collections of songs will be found those suitable to the occasion.

WOODMAN, SPARE THAT TREE

Woodman, spare that tree!
Touch not a single bough!
In youth it sheltered me,
And I'll protect it now.
'Twas my father's hand
That placed it near his cot;
There, woodman, let it stand,
Thy ax shall harm it not.

That old familiar tree,
Whose glory and renown
Are spread from sea to sea,
And wouldst thou hew it down?
Woodman, forbear thy stroke!
Cut not its earth-bound ties;
Oh, spare that aged oak
Now towering to the skies!

When but an idle boy,
I sought its grateful shade;
In all their gushing joy
Here, too, my sisters played.
My mother kissed me here,
My father pressed my hand;
Forgive this foolish tear,
But let that old oak stand.

My heartstrings round thee cling,
Close as thy bark, old friend!
Here shall thy wild birds sing,
And still thy branches bend.
Old tree, the storm still brave!
And, woodman, leave the spot;
While I've a hand to save,
Thy ax shall harm it not.

—*Morris.*

'Tis springtime on the eastern hills!
Like torrents gush the summer rills;
Through winter's moss and dry dead leaves
The bladed grass revives and lives,
Rushes the mouldering waste away,
And glimpses to the April day.
In kindly shower and sunshine bud
The branches of the dull gray wood;
Out from its sunned and sheltered nooks
The blue eye of the violet looks;
The southwest wind is warmly blowing
And odors from the springing grass
The pine tree and the sassafras
Are with it on its errands going.

—*Whittier.*

NEST EGGS

Birds all the summer
Flutter and quarrel
Here in the arbor-like
Tent of the laurel.

Here in the fork
The brown nest is seated;
Four little blue eggs
The mother keeps heated.

While we stand watching her
Staring like gabies;
Safe in each egg are the
Bird's little babies.

Soon the frail eggs they shall
Chip and up-springing
Make all the April woods,
Merry with singing.

Younger than we are
O children, and frailer;
Soon in the blue air they'll be
Singer and sailor.

We, so much older,
Taller and stronger;
We shall look down on the
Birdies no longer.

They shall go flying,
With musical speeches,
High overhead in the
Tops of the beeches.

In spite of our wisdom,
And sensible talking,
We on our feet must go
Plodding and walking.

—*Robert Louis Stevenson.*

WORSHIP IN THE WILDWOOD

See the birds together, in this splendid weather,
Worship God—for he is God of birds as well as men—
And each feathered neighbor enters on his labors—
Sparrow, robin, redpole, finsh and linnet, and the wren.
As the year advances, trees their naked branches
Clothe and seek your pleasure in their green apparel.
Insect and wild beast, keep no Lent, but feast;
Spring breathes upon the earth, and their joy is increased,
And the rejoicing birds break forth in one loud carol.
Come forth on Sundays; come forth on Mondays;
Come forth any day; children come forth to play;
Worship the God of Nature in your childhood;
Worship him in your tasks with best endeavor;
Worship him in your sports, worship him ever;
Worship him in the wildwood; worship him amid the flowers—
In the green-wood bowers;
Pluck the buttercups, and raise your voices in his praise.

—*H. Youl.*

BIRD DAY

A Suggestive Program

Do you ne'er think what wondrous beings these?
So you ne'er think who made them and who taught
The dialect they speak, where melodies
Are interpreters of thought?
—*Longfellow*

Song, "The Skylark"...*James Hogg*

Roll Call—(Answered with names of birds)

Essay, "The Meaning of Bird Day"

Who Stole the Bird's Nest?.....*Lydia M. Child*
(By a group of pupils)

To a Water-fowl.....*William Cullen Bryant*

Quotations about Birds

Remorse.....*Sydney Dagre*

The Sandpiper.....*Celia Thaxter*

Essay, "Bird's Eggs I can Recognize"

Song, "The Birds' Ball"

In April.....*Emily G. Arnold*

Robert of Lincoln.....*William Cullen Bryant*

Essay, "How the Birds Help the Farmers"

The Whitethroat.*Theodore H. Rand*

What Robin Told....*George Cooper*

Robin's Return.....*Edith Thomas*

Birds in Summer.....*Mary Howitt*

A Dialogue between Mr. and Mrs. Wren

Song, "The Brown Thrush".....*Lucy Larcom*

ROBIN'S COME

From the elm-tree's topmost bough,
Hark! the robin's early song!
Telling one and all that now
Merry springtime hastes along;
Welcome tidings dost thou bring,
Little harbinger of spring;
Robin's come!

Of the winter we are weary,
Weary of the frost and snow,
Longing for the sunshine cheery,
And the brooklet's gurgling flow;
Gladly, then, we hear thee sing
The reveille of the spring,
Robin's come!

Ring it out o'er hill and plain,
Through the garden's lonely bowers,
Till the green leaves dance again,
Till the air is sweet with flowers.
Wake the cowslip by the rill,
Wake the yellow daffodil!
Robin's come!

Then as thou wert wont of yore,
Build thy nest and rear thy young
Close beside our cottage door,
In the woodbine leaves among;
Hurt or harm thou need'st not fear,
Nothing rude shall venture near,
Robin's come!
—*W. W. Caldwell*

THE FLOWER'S MESSAGE

Fresh hope and cheer
By symbols clear
The flowers bring us, year by year.

They bloom, they fall,
They slumber all;
The brown earth is their funeral pall;

But lo, some day
Along our way,
They live again, as sweet and gay;

For earth's dark tomb
But hid in gloom
The life that now doth newly bloom.

Oh, then repeat
Your message sweet,
Dear flowers blooming at our feet;

And this new spring
Help us to fling
Aside our doubts and wondering;

To hope and trust
That all life must,
Like yours, be rescued from the dust.
—*Emilie Poulsen.*

TREE PLANTING

O happy tree that we plant today,
What great good fortune awaits you,
For you will grow in sun and snow,
'Til fruit and flower freight you.

Your winter covering of snow
Will dazzle with its splendor,
Your summer's garb with richest glow,
Will feast of beauty render.

In your cool shade with tired feet
Pause, gladly, when 'tis summer,
And rest like this will be most sweet
To every weary comer.

If it is something to make two blades of grass grow where only one was growing, it is much more to have been the occasion of the planting of an oak which shall defy twenty score of winters, or of an elm which shall canopy with its green cloud of foliage half as many generations of mortal immortalities. I have written many verses, but the best poems I have produced are the trees I have planted on the hillside that overlooks the broad meadows, scalloped and rounded at their edges by loops of the sinuous Housatonic. Nature finds rhymes for them in the recurring measures of the seasons. Winter strips them of their ornaments, and gives them, as it were, in prose translation, and summer clothes them in all the splendor of their leafy language.

—*Oliver Wendell Holmes.*

LOVE OF TREES AND PLANTS

Love of trees and plants is safe. You do not run risks in your affections. They are like children silent and beautiful, untouched by any passion, unpolluted by evil tempers; for me they leaf and flower themselves. In Autumn they put off their rich apparel, but next year they are back again with dresses fair as ever; and should I be laid in my grave in winter, they would all in spring be back again with faces as bright and breaths as sweet, missing me not at all.

—*Alex Smith.*

THE ARCH OF ELMS

At noontime, on a sultry day,
Two travelers walked a shady way,
Where elm trees lifted high an arch
That fiercest sunrays could not parch.
Said one: "God bless the kindly hand
That set this arch-way cool and grand!"
The other cried: "Ah, who can say
What comfort yields this leafy way!
Better such monument of green,
Than marble pile of king or queen."

ARBOR DAY

A Suggestive Program

"Jock, when ye hae naething else to do, ye may be aye sticking in a tree; it will be growing, Jock, when ye're sleeping."—*Scott.*

Song, "The Grapevine Swing".*Peck*

The Planting of the Apple Tree.. ..... .*Bryant*

Essay, "What Arbor Day Means"

Tree Planting.....*Lucy Larcom*

Little by Little.....*Anonymous*

Song, "Woodman, Spare That Tree" .....*Morris*

Quotations about Trees

Apple-Seed John....*Lydia M. Child*

The Story of Rhoexus—
(Adapted from Lowell's Poem, *"Rhoecus"*)

Brief "Autobiographies" of Famous Trees

The Oak Tree.....*Mary Howitt*

When We Plant a Tree.....*Abbey*

The Heart of a Tree..*H. C. Bunner*

The Use of Trees—
(Rapid-fire response by pupils naming one use)

The Tree.....*Bjornstjerne Bjornso*

The Making of the Canoe—(From Hiawatha) .....*Longfellow*

Essay, "How to Know Our Home Trees"

Song, "The Linden Tree"

March—By the pupils, each carrying a branch

Tree-Planting

MAY DAY EXERCISES

The First of May

Nearly all primitive peoples had festivals appropriate to the different seasons of the year, some for spring, others for the fall and so on. The first of May, when winter was at an end and summer with its flowers and fruits was at hand, became a festival among many ancient peoples, and especially among the primitive races of Europe. But, when Christianity spread over the continent it did not take over this festival as it did several others; and so the celebration of May Day died down, though it continued to be popular in England until a very recent time, and its festivities as observed by the young folks were very interesting and beautiful.

Of recent years this ancient floral festival has been coming into favor again as one of the special days of the school year, and it can be made very interesting to the younger children. A May pole is set up, steamers are attached, the children are taught simple, graceful movements, winding in and out, holding the streamers in hand, and thus "braiding" the pole. The children are in simple costumes, brightened by a bit of ribbon, a colored sash and paper cap. Of course the costuming may be more elaborate if wished. The children will find it interesting and instructive to make their own costumes. Paper and inexpensive muslins are effectively used for this purpose. The May pole exercises are held on the school ground. In the school room there will be songs and recitations. The decorations are floral. Thus this special day may be made one of the most interesting days of the year.

WAITING TO GROW

Little white snow-drops, just waking up,
Violet, daisy, and sweet buttercup;
Think of the flowers that are under the snow,
Waiting to grow.

And think of what hosts of queer little seeds,
Of flowers and mosses, of fern and of weeds,
Are under the leaves and under the snow,
Waiting to grow.

Think of the roots getting ready to sprout,
Reaching their slender brown fingers about
Under the ice and the leaves and the snow,
Waiting to grow.

Only a month or few days more,
Will they have to wait behind that door,
Listen and watch and wait below,
Waiting to grow.

IN MAY

When grosbeaks show a damask rose
Amid the cherry-blossoms white,
And early robins' nests disclose
To loving eyes a joyous sight.

When columbines like living coals
Are gleaming 'gainst the lichened rocks,
And at the foot of mossy boles
Are young anemones in flocks.

When ginger-root beneath the twin leaves
Conceals its dusky floral bell,
And snowy orchid shyly weaves
In humid nook its fragrant spell.

When dandelion's coin of gold
Anew is united on the lawn,
And maple trees their leaves unfold,
While warblers storm the groves at dawn.

When these and more greet eye and ear,
Then strike thy tasks and come away;
It is the joy-month of the year,
And onward sweeps the tide of May.

—*John Bourroughs.*

SPRING

The alder by the river
Shakes out her powdery curls;
The willow buds in silver
For little boys and girls.

The little birds fly over,
And, oh, how sweet they sing!
To tell the happy children
That once again 'tis spring.

AROUND THE MAY POLE

The gay green grass comes creeping
So soft beneath their feet;
The frogs begin to ripple
A music clear and sweet.

And buttercups are coming,
And scarlet columbine,
And in the sunny meadows
The dandelions shine.

And just as many daisies
As their soft hands can hold
The little ones may gather
All fair in white and gold.

Here blows the warm red clover
There peeps the violet blue;
O happy little children!
God made them all for you.

Celia Thaxter.

MOTHER'S DAY

Second Sunday in May

The second Sunday in May has been set aside quite generally in the United States as a day in which to honor the memory of mothers who have journeyed on. On this day also the lives of mothers whose love and care still sweeten existence are brightened by expressions of love and respect. Thus is fostered in the hearts of all that purest love that earth has ever known—the love that surges between the hearts of a mother and her child. A beautiful symbolism is observed as a part of Mother's Day exercises. It is urged that a white flower (emblematic of purity) be worn personally on the day. The white carnation has been chosen for that purpose. Its whiteness stands for purity; its form, beauty, and fragrance stand for love; its wide field of growth, charity; its lasting qualities, faithfulness—all true mother qualities.

School Exercises

The school exercises are necessarily held the Friday preceding the day itself. The room should be decorated with flowers, in which white flowers should be conspicuous. Endeavor to make the room homelike. If possible, borrow pictures of home scenes and hang them on the walls. Make a special effort to have the mothers of the pupils attend. If any be old and feeble provide easy chairs for their comfort. As for music, lullaby songs are appropriate. Many suitable songs can be found in various collections.

The Message of the Day

There is not a special day in all the year that has such tenderly sweet messages for the teacher to set before the pupils in the few introductory remarks that she is to make. Tell the pupils that a mother's love is the most constant, most enduring, and uplifting force in the world. Tell them that nearly all men who have done great things owe their greatness and their success to their mothers. Tell them about Lincoln, Washington, and Garfield. Tell them, also, that all great men loved and honored their mother. Tell them that this is so important that a special day has been set aside in which they should try to realize what their mother's love means to them, how much they owe to their mother, how they can honor her, and be worthy of that love.

Program

The nature of the day is such that some variations from the programs already considered are required. Songs, recitations and readings are best suited for bringing out the meaning of the day and emphasizing its lesson. A short essay on the history of the day—for which material follows—is allowable. A paper cannot be made effective. Do not make the mistake of inviting some eminent citizen to address the school. The parts in all special day exercises are to be taken by the pupils.

Origin and History

Miss Anna Jarvis of Philadelphia was the first one to suggest the idea of Mother's Day. Asked to arrange a memorial service for her mother, the inspiring thought came to her that the loving service of mothers, generally, should be commemorated. It was recognized that the feverish activity of modern life tended to weaken home ties. Why not set aside one day in the year to revive in all the memory of youthful days when mother kissed away the petty sorrows of childhood, and to stamp indelibly on children the memory of that love that now blesses them. This suggestion was at once adopted, first by churches and religious bodies, and then by the public generally. Taken over by the schools, it has now become one of their special days. It is a holiday designed to teach one of the most beautiful lessons of life.

THOUGHTS ABOUT MOTHERS

Mother's Day is observed in grateful, loving remembrance of her who in our infancy and the tender years of childhood, guarded us with the majesty of her love; in youth blessed us with her devotion, and in our manhood, led us to a proper conception of the responsibilities and duties of life and made more clear the way up which all nations must ascend in God's appointed time.

—Governor Campbell of Texas.

The painter has with his brush transferred the landscape to the canvas with such fidelity that the trees and grasses seem almost real; he has even made the face of a maiden seem instinct with life, but there is one picture so beautiful that no painter has ever been able to perfectly reproduce it, and that is the picture of the mother holding in her arms her babe.

—W. J. Bryan.

The mother's love is the golden link that binds youth to age; and he is still a child, however time may have furrowed his cheek, or silvered his brow, who can yet recall, with a softened heart, the fond devotion or the gentle chidings of the best friend that God ever gives us.

—Bovee.

A mother's first ministration for her infant is to enter, as it were, the valley of the shadow of death, and win its life at the peril of her own. How different must an affection thus founded be from all others.

—Mrs. Sigourney.

Even He who died upon the cross, in his last hour, in the unutterable agony of death, was mindful of his mother, as if to teach us that this holy love should be our last worldly thought, the last point of earth from which the soul should take its flight for heaven.

—Longfellow.

The mother who does her part in rearing and training aright the boys and girls who are to be the men and women of the next generation, is of greater use to the community and occupies, if she only would realize it, a more honorable position, as well as more important one, than any so-called successful man in it.

—Theodore Roosevelt

A MOTHER'S LOVE ENDURES

Others may love you when your mother has passed away—perhaps a kindhearted sister or she whom of all the world you have chosen as a partner through life—she may love you warmly, passionately; children may love you fondly; but never again while time is yours shall the love of woman be to you as that of your old trembling mother. There is indeed an enduring tenderness in the love of a mother to her son that transcends all other affections of the heart.

It is neither to be chilled by selfishness, weakened by worthlessness, nor stifled by ingratitude. She will sacrifice every comfort to his convenience. She will surrender every pleasure to his enjoyment; she will glory in his fame, and exult in his prosperity. If misfortune overtake him, he will be the dearer to her for misfortune; if disgrace settles upon his name she will still love and cherish him in spite of his disgrace. If all the world besides cast him off, she will be all the world to him.

A father may turn his back on his child, brothers and sisters may become inveterate enemies, husbands may desert their wives and wives their husbands, but a mother's love endures through all. In good repute, in bad repute, in the face of the world's condemnation, a mother still lives on and still on and still hopes that her child may turn from his evil ways; still she remembers his infant smile that ever filled her bosom with rapture, the merry laugh, the joyful shout of his childhood, the opening promise of his youth, and thinking of these she never can be brought to think him all unworthy.

—From Golden Gems.

YOUR MOTHER

Nobody else may ever care because you have
a broken heart;
Nobody else, if you should err, may be inclined
to take your part;
But she will know and she will pray
That God may take your woes away;
When all fair weather friends forget, when
fortune turns and smiles no more,
Her faith in you will linger yet, she will be
faithful as before.

Nobody else may ever see your native worth,
your nobleness;
Nobody else may know, but she will know,
what talents you possess;
Though others enviously frown,
Or slyly seek to drag you down,
She will in word and thoughts be true, and
with sweet triumph in her breast,
Achieve her rarest blessing through the favors,
through which you are blessed.

Nobody else may weep because your dearest
plans have come to naught,
Nobody else may deign to pause, if in sin's
meshes you are caught,
To ask if you had been to blame,
Or seek to rid you of your shame;
But she would still, with all her heart proclaim your innocence, your worth,
Oh, strive, my boy, to do your part to gladden
her brief days on earth.

—S. E. Kiser.

WHISTLER'S PICTURE OF HIS MOTHER

MOTHER'S LOVE

I've lived to learn that friends grow weak,
When trouble marks you for its own;
The ones you love oft turn aside,
And leave the fight to you alone.
I've stood on many scenes of strife,
I've stood where care and pain assailed,
And though friends oft turned away,
Yet mother's hand has never failed.

As in that childhood far removed
She smoothed my brow and dried each tear,
Still, in young manhood's troubled hour,
With loving words she hovers near.
Oh, fickle love and friendship false
Oh, glittering dreams and hopes bewailed,
You weakened in life's darkest hour,
But mother's love has never failed.

Whatever God shall choose to do
With this frail tenement of clay,
Whatever use he finds for it
Along life's dark and dreary way;
That much shall be a monument
To tell mankind where'er assailed,
A mother's love, a mother's prayers,
A mother's hand has never failed.

—*Louis E. Thayer.*

THE MOTHER'S WORK

Mother's arms were made for holding,
Made for folding snug and tight,
Little forms so soft and helpless,
Nestled there to say good-night.

Mother's hands were made for stroking,
Made for soothing childish woes;
Balm of wondrous magic healing
Through each gentle finger flows.

Mother's lips were made for kissing,
Made for drowning childish fears,
Smiles and kisses both together
Stop the flow of bitter tears.

Mother's hearts were made for loving,
Made for love no others know.
God in heaven, bless and keep it
Ever pure as whitest snow.

—*Cora Lindsey Field.*

THE OLD ARM-CHAIR

I love it, I love it, and who shall dare
To chide me for loving that old arm-chair?
I've treasured it long as a sainted prize,
I've bedewed it with tears, I've embalmed it with sighs.
'Tis bound by a thousand bands to my heart;
Not a tie will break, not a link will start;
Would you know that spell? A mother sat there
And a sacred thing is that old arm-chair.

In childhood's hour I lingered near,
The hallowed seat with listening ear;
And gentle words that mother would give
To fit me to die, and teach me to live.
She told me that shame would never betide
With truth for my creed, and God for my guide;
She taught me to lisp my earliest prayer,
As I knelt beside that old arm-chair.

I sat and watched her many a day,
When her eye grew dim, and her locks were gray;
And I almost worshipped her when she smiled,
And turned from her Bible to bless her child.
Years rolled on, but the last one sped,—
My idol was shattered, my earth-star fled,
I learned how much the heart can bear,
When I saw her die in that old arm-chair.

'Tis past, 'tis past, but I gaze on it now
With quivering breath and throbbing brow;
'Twas there she nursed me, 'twas there she died,
And memory flows with lava tide.
Say it is folly, and deem me weak,
But, I love it, I love it, and who shall dare
To chide me for loving that old arm-chair.
Whilst scalding drops start down my cheek;

SHE MADE HOME HAPPY

"She made home happy," these few words I read
Within a churchyard, written on a stone;
No name, no date, the simple words alone,
Told me the story of the unknown dead,
A marble column lifted high its head
Close by, inscribed to one the world has known;
But Ah! that lonely grave with moss o'ergrown
Thrilled me far more than he who armies lead.

"She made home happy" through the long sad years,
The mother toiled and never stopped to rest,
Until they crossed her hands upon her breast,
And closed her eyes, no longer dim with tears,
The simple record that she left behind
Was grander than the soldier's to my mind.

—*Henry Coyle.*

MOTHER

The light, the spell-word of the heart,
Our guiding star in weal or woe,
Our talisman—our earthly chart—
That sweetest name that earth can know.

We breathed it first with lisping tongue,
When cradled in her arms we lay;
Fond memories 'round that name are hung,
That will not, cannot pass away.

We breathed it then, we breathe it still,
More dear than sister, friend or brother;
The gentle power, the magic thrill,
Awakened by the name of mother.

MEMORIAL DAY
(DECORATION DAY)

This day was instituted in 1868 by the Grand Army of the Republic. On this day the graves of comrades who died in defense of their country during the Civil War are strewn with flowers or otherwise decorated. But the original purpose of the day has widened with the passing of years, and now it is one in which the business of the country pauses in order that we—the living—may pay tribute to the memory of those who have journeyed on, by visiting their resting places and leaving there evidences of love and affection. Who can say that thoughts thus engendered do not vibrate beyond the range of the physical senses and break in benediction on waiting souls beyond?

The Central Thought

The central thought that the teacher should endeavor to amplify in a few earnest words is such a beautiful one that she should carefully prepare for the day's exercises. She is not endeavoring to give form to an ideal appropriate to busy life, but to center thought on higher things—on love of country, gratitude to our nation's defenders, including those who died that the Union might live, those who fell that Cuba might be free, and those who sleep beneath the lilies of France; and then it widens to teach the lesson that the loves and affections of active life are linked in some unknown way to currents of love flowing in from the shoreless sea. Not to set this forth in a few well-chosen sentences is to miss the real message of Memorial Day.

THE BRAVE AT HOME

The maid who binds her warrior's sash
With smile that well her pain dissembles,
The while beneath her drooping lash
One starry tear-drop hangs and trembles,
Thou, Heaven, alone records the tear,
And Fame shall never know her story,
Her heart has shed a drop as dear
As e'er bedewed the field of glory.

The wife who girds her husband's sword,
'Mid little ones who weep or ponder,
And bravely speaks the cheering word,
What though her heart be rent asunder,
Doomed nightly in her dreams to hear
The bolts of death around him rattle,
Has shed as sacred blood as e'er
Was poured upon the field of battle.

The mother who conceals her grief
While to her breast her son she presses,
Then breathes a few brave words and brief,
Kissing the patriot brow she blesses,
With no one but her secret God
To know the pain that weighs upon her
Sheds holy blood as e'er the sod
Received on Freedom's field of honor.

—*T. B. Read.*

HOW SLEEP THE BRAVE

How sleep the brave who sink to rest,
By all their country's wishes blest!
When Spring with dewy fingers cold,
Returns to deck their hallowed mold,
She there shall dress a sweeter sod
Than Fancy's feet have ever trod.

By fairy hands their knell is rung;
By forms unseen their dirge is sung;
Their Honor comes, a pilgrim gray,
To bless the turf that wraps their clay;
And Freedom shall awhile repair,
To dwell a weeping hermit there.

—*William Collins.*

Go where we will, the departed are with us. By our finer intuitions we live and converse with them. Their well-remembered tone mingles with the whispering breeze, with the sound of falling leaf, with the softly calling voices of spring. The earth is filled with the labors of the departed. Almost all the literature of the world, the discoveries of science, the glories of art, the ever-enduring temples, the dwelling places of generations, the maxims and opinions of the living, the very framework of society, the institutions of nations, the fabric of empires—all are the work of the departed. And thus in silent converse with soul they all are gone, yet speak.

A MOHAMMEDAN POEM ON DEATH

(Azan—the Mohammedan hour of prayer)

He who died at Azan sends
This to comfort all his friends.

Loving friends! *It* lies, I know,
Pale and white and cold as snow;
And ye say, "Abdállah's dead!"
Weeping at the feet and head.
I can see your falling tears,
I can hear your sighs and prayers;
Yet I smile and whisper this—
"*I* am not the thing you kiss;
Cease your tears and let it lie;
It *was* mine, it is not *I*"
Sweet friends, what the woman lave,
For its last bed of the grave,
Is but a hut which I am quitting
Is a garment no more fitting,
Is a cage from which at last,
Like a hawk my soul hath passed.
Love the inmate, not the room—
The wearer, not the garb—the plume
Of the falcon, not the bars
Which kept him from the splendid stars.

Loving friends be wise and dry
Straightway every weeping eye;
What ye lift upon the bier
Is not worth a wistful tear.
'Tis an empty sea-shell—one
Out of which the pearl has gone;
The shell is broken—it lies there;
The pearl, the all, the soul is here,
'Tis an earthen jar, whose lid,
Allah hid the while it hid
The treasure of his treasury,
A mind that loved him; let it lie?
Let the ahard be earth once more,
Since the gold shines in his store.

He who died at Azan gave
This to those who made his grave.

—Sir Edwin Arnold.

REFLECTION

When I look upon the tombs of the great, every emotion of envy dies; when I read the epitaph of the beautiful, every inordinate desire forsakes me; when I meet with the grief of parents upon a tombstone, my heart melts with compassion; when I see the tombs of the parents themselves, I reflect how vain it is to grieve for those we must quickly follow; when I see kings lying beside those who deposed them, when I see rival wits placed side by side, or the holy men who divided the church with their contests and disputes, I reflect with sorrow and astonishment on the frivolous competitions, factions, and debates of mankind.

—Addison.

THE NAMELESS DEAD

We only know they fought and died, and o'er their graves the wind has sighed, for many a long, slow-footed year; and winter's snow has drifted here; and in the dawning warmth of spring the joyous birds came here to sing; we only know that rest is sweet to weary hearts and toiling feet, and they who sleep beneath the sod gave all they had to give to God. And in the radiance of the Throne, their names are known—their names are known. We know not from what homes they came we can but guess their dreams of fame; but lamps for them did vainly burn, and mothers waited their return, and listened, at some cottage door, for steps that sounded never more; and loving eyes grew dim with tears, and hearts grew old with grief of years. And here they sleep, as they have slept, since legions o'er the country swept; where mothers wait before the Throne, their names are known—their names are known!

—Wali Mason.

THE PRINCESS PATS

No need to call the roll today;
No need to read the scroll today;
No need to seek for friends you knew
among the first command;
Small use—you know the rest of it,
The worst of it—the best of it—
Where Fate has written each address—
"Somewhere in No Man's Land."

Somewhere in No Man's Land today
You'll find the first command today,
From Neuve Chapelle to Vimy Ridge,
wherever they were sent;
Their share? A triple store of it,
They did their bit, and more of it,
So here's to twenty who returned where
fourteen hundred went.

—Grantland Rice.

Rest, soldier, rest. The crown is thine—
The crown of thorns and glory.
Bright angels lift thy bruised life,
And wave their palms before thee.

Dream, soldier, dream, Thy voice rings out
And comrades swell the chorus.
Dream that thy hand still waves the Flag;
Thy spirit flames before us.

—Charles J. North.

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THE AMPHITHEATER AT THE NATIONAL CEMETERY AT ARLINGTON

IN FLANDERS' FIELDS

In Flanders' fields the poppies blow
Between the crosses, row on row,
That mark our place; and in the sky,
The larks still bravely singing fly,
Scarce heard amidst the guns below.

We are the dead. Short days ago
We lived, felt dawn, saw sunset glow,
Loved and were loved, and now we lie
In Flanders' fields.

Take up our quarrel with the foe!
To you from failing hands we throw
The Torch—be yours to hold it high;
If ye break faith with us who die,
We shall not sleep, though poppies grow
In Flanders' fields.

—*Lieut. Col. John McCrae.*

THE REAPER AND THE FLOWERS

There is a Reaper whose name is Death,
And with his sickle keen,
He reaps the bearded grain at a breath
And the flowers that grow between.

"Shall I have naught that is fair?" said he;
"Have naught but the bearded grain?
Though the breath of these flowers is sweet to me,
I will give them all back again."

He gazed at the flowers with tearful eyes,
He kissed their drooping leaves;
It was for the Lord of Paradise
He bound them in his sheaves.

"My Lord hath need of these flowerets gay"
The Reaper said, and smiled;
"Dear tokens of earth are they,
Where he was once a child.

"They shall all bloom in fields of light,
Transplanted by my care,
And saints upon their garments white,
These sacred blossoms wear."

And the mother gave, in tears and pain
The flowers she most did love!
She knew she should find them all again
In the fields of light above.

Oh, not in cruelty, not in wrath,
The Reaper came that day;
'Twas an angel visited the green earth,
And took the flowers away.

—*Longfellow.*

SONG OF THE SILENT LAND

Into the Silent Land!
Ah, who shall lead us thither?
Clouds in the evening sky more darkly gather,
And shattered wrecks lie more thickly on the strand.
Who leads us with a gentle hand
Thither, oh thither,
Into the Silent Land?

Into the Silent Land!
To you, ye boundless regions
Of all perfection! Tender morning visions
Of beauteous souls! The future's pledge and band!
Who in life's battle form doth stand,
Shall bear Hope's tender blossoms
Into the Silent Land.

O Land! O Land!
For all the broken-hearted,
The mildest herald by our fate allotted,
Beckons and with inverted torch doth stand
To lead us with a gentle hand
To the land of the great departed—
Into the Silent Land.

—*J. G. Von Salis.*

Song of the nation, to glory renewed,
Strew with fresh laurels the patriot's grave,
Heed the libation to liberty poured,
Honor the blood of the fearless and brave.

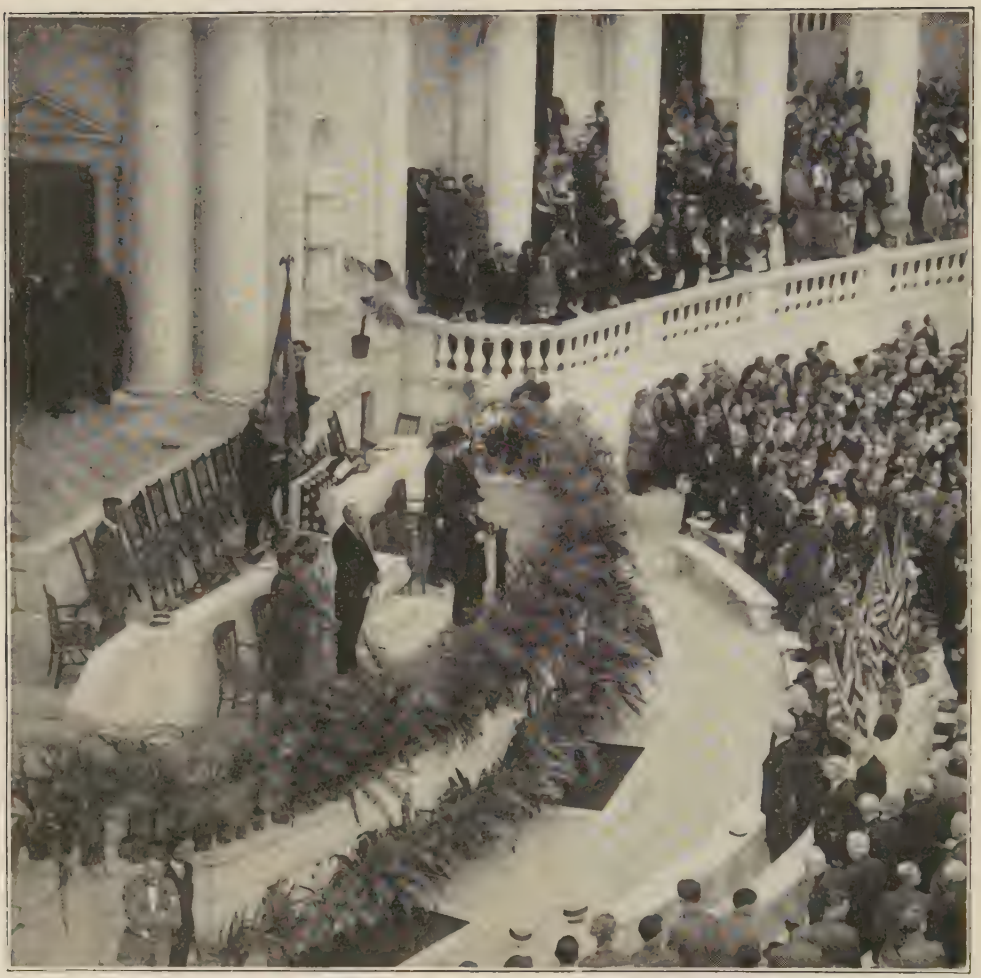
When the red bolts of destruction were hurled,
Bursting in tempests of fury and flame,
Faithful to freedom, the hope of the world,
Swift to the rescue each patriot came.

Trace it in marble as white as the snows,
Chisel in granite the record sublime;
Sacred to freedom, and teaching our foes
Lessons in wisdom as lasting as time.

Bright as the stars in the firmament shine,
Still may they watch o'er this land from on high;
Teaching our hearts as their names we enshrine,
Faithful to freedom to live and to die.

THE VOICES OF THE DEPARTED

The world is filled with the voices of the departed. They speak not from the public records of the great world only, but from the private history of our own experience. They speak to us not only from the silent resting places but from the busy throng of life. Though they are invisible, yet life is filled with their presence. They are with us by the silent fireside and in the secluded chamber. They are with us in the paths of society, and in the crowded assemblies of men. They speak to us from the lonely wayside, and they speak to us from venerable walls that echo to the voices of prayer.



PRESIDENT HARDING DELIVERING THE MEMORIAL DAY ADDRESS AT ARLINGTON

I HAVE A RENDEZVOUS WITH DEATH

I have a rendezvous with Death
  At some disputed barricade,
When spring comes back with rustling shade
  And apple blossoms fill the air—
I have a rendezvous with Death
  When spring brings back blue days and fair.

It may be he shall take my hand
  And lead me into his dark land,
And close my eyes and quench my breath—
  It may be I shall pass him still.
I have a rendezvous with Death
  On some scarred slope of battered hill,
When spring comes round again this year
And the first meadow flowers appear.

God knows 'twere better to be deep
  Pillowed in silk and scented down,
Where love throbs out in blissful sleep,
  Pulse nigh to pulse, and breath to breath
Where hushed awakenings are dear—
  But I've a rendezvous with death
At midnight in some flaming town
  When spring trips north again this year—
And I to my pledged word am true
  I shall not fail that rendezvous.

—Alan Seeger.

FLAG DAY

June 14

This special day has been set aside as one on which our attention and thoughts shall be directed to the flag of our country, to the end that we may learn of its origin, what it stands for, and the respect that should be shown it. This is not a meaningless display of sentiment. Its purpose is to stimulate love of country. Nothing can be more important, for he he who does not respond to that sentiment is a traitor at heart.

It is especially appropriate that the schools of our land should celebrate this day with patriotic exercises. The children of all nationalities attend the schools; there they meet and mingle in their studies and their plays. Whatever sentiments of respect and loyalty children of the foreign-born entertain for the home land of their parents, it should be our effort to unite all that in one overmastering feeling of love for America, the country that opened its doors for their parents, and which is now their country. Thus shall we make one hundred per cent Americans of these children. As a nation we are facing danger unless this result is accomplished.

The teacher who does not realize that it is her privilege on this day to impress on her pupils a lesson of transcendent importance to national well-being is not alive to her calling. Let her see to it that her remarks, the songs, and all the exercises that follow shall tell with appealing force something of Old Glory, what it stands for, how it floats at the mastheads of our battleships as they go into action, how it is carried at the front of marching columns of our soldiers on foreign soil; and make them familiar with what out statesmen, orators and poets have said about the flag of our country. Thus shall she light in youthful hearts the fires of patriotism, and her pupils will, in after years, be ready to defend with their lives the Star Spangled Banner, in the Philippines, in France, in tropic lands,—wherever duty calls them.

FLAG DAY PROGRAM

Song, "The Star Spangled Banner" .....*Key*
Essay, "The Story of the American Flag"
Recitation, "The American Flag" .....*Drake*
Declamation, "The Stars and Stripes" .....*Sumner*
Chorus, "Battle Hymn of the Republic" .....*Howe*
Declamation, "The Man Without a Country" .....*Hale*
Recitation, "The Blue and the Gray" .....*Finch*
Chorus, "Hail Columbia".*Hopkinson*
Essay, "What the Flag Stands For"
Chorus, "Tenting on the Old Camp Ground" .....*Smith*
Declamation, "The Gettysburg Speech" .....*Lincoln*
Salute to the Flag by the School
Chorus, "America".....*Smith*

The Program

The school room should be brightened by a generous display of bunting. In addition, get some colored crayons and place upon the blackboard a waving flag. Underneath write this couplet:

"The Star Spangled Banner, oh, long may it wave
O'er the land of the free and the home of the brave!"

The music should consist of patriotic songs. Of course the National Anthem will be one, followed by such songs as "Rally Round the Flag, Boys," "Columbia, the Gem of the Ocean," etc.

THE STORY OF BETSY ROSS

The full story of Betsy Ross is that she was a flag maker and that in June, 1777, she was waited on by General Washington and a committee from Congress and requested to develop with her needle their plan for a flag. A rough design is said to have been drawn for by Washington himself. As a reward for her work she was made the official maker of government flags. She is said to have worked all night to have it ready for Washington and the committee in the morning.

This is an interesting story and there may be some truth in it, for there was a Mrs. Ross who was a flag maker by trade, living in Philadelphia in 1777. It is generally regarded as one of the many picturesque legends that have grown up about the origin of the flag.

THE STORY OF THE FLAG

The Star Spangled Banner became the national flag of the United States on June 14, 1777, when Congress adopted it as the national emblem. So the day we celebrate is the birthday of the flag. The thirteen stars and stripes of the first flag represented the thirteen original states. The stars of the first flag were arranged in a circle, the circle representing eternity and the stars unity. The stars also represent the subordination of the states to the Union, the broad red stripes representing union.

The flag was first recognized by a foreign power when John Paul Jones, commander of the Ranger, carried it into foreign waters. The first power to recognize it was France; this was February 13, 1778. The first appearance of the flag in battle on the land was at Fort Stanwix, August 6, 1777. The first time it was carried into action on the sea was September 4, 1777. In 1818 Congress provided that the number of stripes should be fixed at thirteen, one for each of the original states, but that a star should be added for each new state. The present arrangement of stars was adopted in 1912, when all territories had become states.

THE SCHOOLHOUSE AND THE FLAG

Ye who love the Republic, remember the claim
Ye owe to her fortunes, ye owe to her name,
To her years of prosperity past and in store,—
A hundred behind you, a thousand before.

The blue arch above us is Liberty's dome,
The green fields beneath us is Equality's home;
But the schoolroom today is Humanity's friend,
Let the people, the flag and the schoolhouse
defend.

THE AMERICAN FLAG

When Freedom, from her mountain height,
Unfurled her standard to the air,
She tore the azure robe of night,
And set the stars of glory there!
She mingled with its gorgeous dyes
The milky baldric of the skies,
And striped its pure celestial white
With streakings of the morning light;
Then from his mansion in the sun,
She called her eagle bearer down,
And gave into his mighty hand
The symbol of her chosen land!

Majestic monarch of the cloud!
Who rear'st aloft thy regal form,
To hear the tempest trumpets loud
And see the lightning-lances driven,
When stride the warriors of the storm
And rolls the thunder-drum of heaven!
Child of the sun! To thee 'tis given
To guard the banner of the free,
To hover in the sulphur smoke,
To ward away the battle stroke,
And bid its blendings shine afar
Like rainbows on the cloud of war,
The harbinger of victory?

Flag of the brave, thy folds shall fly,
The sign of hope and triumph high!
When speaks the signal trumpet tone,
And the long line comes gleaming on
(Ere yet the life blood warm and wet
Has dimmed the glistening bayonet)
Each soldier's eye shall brightly turn,
To where thy sky-born glories burn,
And, as his springing steps advance,
Catch war and vengeance from the glance,
And when the cannon mouthings cloud
Heaves in wild wreathes the battle shroud,
And gory sabres rise and fall,
Like shoots of flame on midnight's pall;
There shall thy meteor-glances glow,
And cowering foes shall shrink beneath
Each gallant arm that strikes below
That lovely messenger of death.

THE CALL OF THE FLAG

Its folds wave a benediction to the yesterdays of accomplishment and beckon the tomorrows of progress with hope and confidence; it heralds the noble purpose of a mighty people and carries a message of hope and inspiration to all mankind. Its glowing splendor appeals to us to demand international justice and arbitration; it commands us to self-sacrifice and to universal obligation of service, which alone can maintain equality of rights and fulness of opportunity in our republic.

—Frederick C. Hicks.

SAYINGS OF EMINENT MEN OF THE FLAG

A thoughtful mind, when it sees a nation's flag, sees not the flag only, but the nation itself; and whatever may be its symbol, or its insignia, he reads chiefly in the flag of the government the principles, the truth, the history which belong to the nation that sets it forth. This nation has such a banner, and wherever it streamed abroad, men saw daybreak bursting on their eyes, for the American flag has been the symbol of liberty and men rejoiced in it. Not another flag on the globe has such an errand, or went forth upon the sea carrying everywhere the glad tidings. The stars upon it were to other nations like the morning stars of God, and the stripes upon it were beams of morning light.

Under that flag rode Washington and his armies; before it Burgoyne laid down his arms. It cheered our armies driven from New York in their sad pilgrimage through New Jersey; it streamed in glory over Valley Forge; it crossed the waters filled with ice at Trenton; and when the long years of war drew to a close, underneath the folds of this banner sat Washington while Yorktown surrendered its hosts. The Stars and Stripes have been unfurled from the snows of Canada to the palm-crested heights of San Juan de Cuba; they crossed the broad Pacific and waved in triumph in Philippine breezes; carried to Europe it arrested the westward march of autocracy at Chateau Thierry, Belleau Woods, and the forest maze of the Argonne.

Let us then twine each thread of the glorious tissue of our country's flag about our heart strings; and looking upon our homes and catching the spirit that breathes upon us from the battle fields of our fathers, let us resolve that come weal or woe, we will in life and in death, now and forever, stand by the Stars and Stripes. They have floated over our cradle, let them also, we pray, float over the graves.

Adapted from Henry Ward Beecher.

THE LANGUAGE OF THE FLAG

The very colors have a language known and read of all men. The groundwork of the flag, as of the Union, is whiteness, white being the emblem of truthfulness, righteousness, and purity; and drawn across the white face—white as an angel's wing—is the crimson band which from creation's morning has symbolized all the courage and self-sacrifice and opened-veined manhood which can flow in wide red streams from the gaping wounds of patriot and hero. And pressed close upon the crimson streams is blue, like the body of heaven for clearness, out of which shine the mysterious silent stars, lighting the night with cheerful fires. The blue of the ocean and of the sky is there, and on whatever coast the deep blue ocean beats, and over whatever people the peaceful firmament bends down, the starry flag shall shed its triumphant benediction and celestial influence. The stars and all the powers of heaven are there, and as surely as the stars in their courses fought against Sisera in the old time, so will they fight now for the flag which is the emblem of truth and freedom.

—C. H. Cobern.

THE EMBLEM OF OUR COUNTRY

The flag which we honor and under which we serve, is the emblem of our unity, our power, our thought and purpose as a nation. It has no other character than that which we give it from generation to generation. The choices are ours. It floats in majestic silence above the hosts that execute those choices, whether in peace or in war. And yet though silent it speaks to us—speaks to us of the past, of the men and women who went before us, and of the records they wrote upon it.

We celebrate the day of its birth; and from its birth until now it has witnessed a great history, it has floated on high the symbol of great events, of a great plan of life worked out by a great people. We are about to carry it into battle, to lift it where it will draw the fire of our enemies. We are about to bid thousands, hundreds of thousands, it may be millions of our young men—the young, the strong, the capable men of the nation—to go forth and die beneath it on fields of blood. Once more we shall make good with our lives and fortunes the great faith to which we were born, and a new glory shall shine in the face of our people.

—President Woodrow Wilson.

WHAT THE FLAG MEANS

What American of all of us can see our starry banner flutter out on mast or tower, or pass in the street without a sudden heart throb? Love, pride, memory, exultation mingle in one swift emotion, and yet we seldom pause to think what Old Glory really means to us.

It means history—stained here and there with mistake and wrong—but on the whole wonderfully glorious. It means protection—the right to live, to think, to aspire, to work in an atmosphere of the most blessed freedom and safety that our earth has ever known. It means hope—hope and help for ourselves and for all the world.

Whatever the nation is to achieve or to become in the future depends upon its citizenship, and the mighty voice of the people is but the combined voice of the individuals. What would you have our country be in honor, purity, high endeavor, and righteousness? Make one citizen of that kind; that is the part given you to do.

—Kate W. Hamilton.

THE STARRY FLAG

From proud Atlantic's surging waves
To where the broad Pacific lies,
And playfully the bright sand laves
Beneath clear, sunny skies!

From far along Canadian lines
To rocky borders of the land
To where the Gulf in beauty shines,
And breaks upon the strand.

From Allegheny's crested mounts
And on the Rockies' summits gray
Where brightly, snow-fed crystal founts
Are welling forth alway.

On Mississippi's mighty tides,
And on Ohio's silver streams,
Or where the Susquehanna glides
Or Schuylkill's ripples gleam;

Where Deleware, with current grave,
Is sweeping outward to the sea;
In every land, on every wave,
The starry flag floats free.

And through all time this flag above,
In triumph o'er Oppression's holds,
Shall in the light of peace and love,
Unroll its glorious folds.

THE FLAG OF THE CONSTELLATION

The stars of our morn on our banner borne,
With the iris of heaven are blended.
The hands of our sires first mingled those fires,
By us they shall be defended!
Then hail the true—the Red, White, and Blue,
The flag of the constellation;
It sails as it sailed, by our forefathers hailed,
O'er battles that made us a nation.

What hand so bold to strike from its fold,
One star or stripe of its bright'ning;
To him be each star a fiery Mars,
Each stripe a terrible lightning.
Then hail the true—the Red, White, and Blue,
The flag of the constellation;
It sails as it sailed, by our fathers hailed,
O'er battles that made us a nation.

Its meteor form shall ride the storm
Till the fiercest of foes surrenders;
The storm gone by, it shall gild the sky,
As a rainbow of peace and splendor.
Then hail the true—the Red, White, and Blue,
The flag of the constellation,
It sails as it sailed, by our fathers hailed,
O'er battles that made us a nation.

THE FLAG

Here comes the Flag.
Hail it!
Who dares to drag
Or trail it?
Give it hurrahs,—
Three for the stars,
Three for the bars.
Uncover your head to it!
Shout at the sight of it!
The justice and right of it,
The unsullied white of it,
The blue and the red of it,
And tyranny's dread of it!
Here comes the Flag.
Cheer it!
Valley and crag
Shall heart it.
Fathers shall bless it.
Children caress it,
All shall maintain it,
No one shall stain it.

Cheers for the sailors that fought on the wave
for it,
Cheers for the soldiers that were always brave
for it,
Tears for the men that went down to the grave
for it,
Here comes the Flag!

OUR FLAG

Fling it from mast and steeple,
Symbol o'er land and sea,
Of the life of a happy people,
Gallant and strong and free.
Proudly we view its colors,
Flag of the brave and true,
With the clustering stars and steadfast bars
The red, the white, and the blue.

Flag of the fearless hearted,
Flag of the broken chain,
Flag in a day-dawn started,
Never to pale or wane.
Dearly we prize its colors,
With the heaven light breaking through,
The clustering stars and the steadfast bars,
The red, the white, and the blue.

Flag of the sturdy fathers,
Flag of the loyal sons,
Beneath its folds it gathers,
Earth's best and noblest ones.
Boldly we wave its colors,
Our veins are thrilled anew;
By the steadfast bars, the clustered stars,
The red, the white, and the blue.

INDEPENDENCE DAY

Fourth of July

This day is observed in every state of the Union as the distinctive national holiday; the event that we then celebrate is the most important one in American history. Independence Day is now observed wherever any considerable number of Americans are assembled, especially in foreign cities, like London, Paris and Berlin. In 1918 it was celebrated to the diapason of war up and down the jagged front in France, wherever our American boys were gathered beneath the folds of the Stars and Stripes.

Schools not being in session, the exercises—wherever the day is duly celebrated—require community co-operation to be made effective. As a nation we have of recent years awakened to the deeper significance of the day, and we have adopted methods of celebration that more fittingly impress its meaning on all who participate—a message from the patriotic forefathers of our country to all who claim the privilege of American institutions.

The day should be a real get-together day for the community. The exercises should be held in the town park, or square, or the school grounds, or in a nearby grove. They should be in charge of a committee. In many communities, the Parent-Teacher Association is the logical one to take the initiative, though it should co-operate with whatever other committee has been appointed. The celebration should be made an occasion for the renewal of old friendships, an occasion for the strengthening of the community spirit; an occasion on which we once more learn of the origin of our country as a separate nation, and—in a sense—dedicate ourselves anew to American institutions for which so many thousands of American boys have laid down their lives, in Europe and in tropical lands as well as our own America.

OUR OWN DEAR LAND

Our own dear land, our native land,
Home of the brave and free!
In vain we search old ocean's strand
To find a land like thee.
Thy towering hills, thy prairies wide,
Thy forests old and dim,
Thy streams that roll in matchless pride,
Thy torrent's thunder-hymn.

Our own dear land, our native land,
None can compare with thee;
The fairest work of nature's hand—
Our own dear land for me!
Our own dear land, our native land,
Fearless thy banner waves,
And nations yet unborn shall stand
Beside thy heroes' graves.

Our fathers spurned Oppression's laws,
All fought for God and right;
So may their sons, in Freedom's cause,
Be foremost in the fight!
Our own dear land, our native land,
Home of the brave and free;
The finest work of nature's hand—
Our own dear land for me.

MY COUNTRY'S FLAG

My country's flag I see,
Emblem of liberty,
Cheerily wave.
Shine stars forever bright,
Stripes represent the right,
Red, blue and purest white
Inspire the brave.

Float o'er the city's crowd,
On country cabin proud,
Blest banner, fly,
Curb all unhallowed wrongs,
Cheer all our toiling throngs,
Thrill every heart with songs,
Proclaim God nigh.

When evil floods the land,
And the danger thickly stand,
Boasting of might.
Wave banner of the free,
Wave on, in majesty,
Float over land and sea
For God and right.

Turn back the evil host
Of liberty we boast,
But not of wrong.
Float proudly in the light
Guiltless in the sight
Conquer by means of right,
Thy power to prolong.

THE PRESENTATION OF THE DECLARATION OF INDEPENDENCE

THE NATION'S BIRTHDAY

Ring out the joy bells! Once again,
With waving flags and rolling drums,
We greet the Nation's Birthday, when
In glorious majesty, it comes.
Ah, day of days, alone it stands,
While, like a halo round it cast,
The radiant work of patriot hands,
Shines the bright record of the past.

Among the nations of the earth,
What land hath story like our own?
No thought of conquests marks her birth;
By those who crossed the ocean wild,
That they might plant upon her sod
A home for Peace and Virtue mild,
And altars rear to Freedom's God.

How grand the thought that bade them roam!
Those pilgrim bands by Faith inspired—
That bade them leave their cherished home,
And, with martyr's spirit fired,
Guide their frail vessels o'er the main
Upon the glorious mission bound,
On alien soil a grave to gain,
Or else a free-born nation found.

What land has heroes like to ours?
Their names are as the lightning's gleam,
When on the darkling cloud that lowers,
In blinding majesty it streams.
Great Washington, the man of faith,
Who conquered doubt with patient might:
Warren and Putnam, true till death,
The "Swamp Fox," eager for the fight.

See Magor Molly's woman hand
Drive home the murderous cannon ball:
For home and country risking all.
A glorious list and without end:
Forgotten were both sex and age:
Their names in radiant luster blend,
And shine like stars on history's page.

Like the stars to light the firmament,
And show the world what men may do.
Who, as God's messengers are sent
And to their mission still are true,
No end had they to seek or gain:
Their work was there before their sight:
There lay their duty, stern and plain,
To dare and suffer for the right.

The right that conquered, and whose power
Is shown in our broad land today:
Shown in this bright and prosperous hour,
When peace and plenty gild our way:
Shown in the glorious song that swells
The hearts of men from South to North,
And in its rapturous accents tell
The glorious story of our Fourth.

INDEPENDENCE DAY

Suggestive Program

I.

Hail Independence, Hail! Heaven's next best gift to that of life and an immortal soul!—*Thomson.*

Song, "Hail Columbia"
Reading of the Declaration
Essay, "The Story of the Declaration of Independence"
The Rising in 1776.....*Read*
The Battle of Lexington....*Lanier*
Essay, "What Is True Patriotism?"
Essay, "Why I Love My Country"
Concord Hymn.....*Emerson*
Tableau, "The Spirit of '76"
(After the painting by Willard)
The Old Continentals....*McMaster*
The Little Black-eyed Rebel.*Carleton*
Ticonderoga .....*Wilson*
Essay, "A Tribute to Washington"
The American Flag.....*Drake*
Song, "America"

II.

Oh, let freemen be our sons,
And let future Washingtons
Rise to lead their valiant ones,
Till there's war no more.

Song, "Columbia, the Gem of the Ocean"
Song, "The Star Spangled Banner"
The Ship of State.....*Longfellow*
Flag Salute—
(Girls may be dressed to represent states)
Essay, "The 'Sane Fourth' Movement"
Grandmother's Story of Bunker Hill .....*Holmes*
The Name of Old Glory.....*Riley*
Song of Marion's Men.....*Bryant*
The Flag Goes By.....*Bennett*
America for Me.....*Van Dyke*
Essay, "The Tribute to Franklin"
Essay, "What My State Has Done for the Country"
Paul Revere's Ride.....*Longfellow*
Nathan Hale.....*Finch*

THE LIBERTY BELL

THE REPUBLIC

Thou too, sail on, O Ship of State!
Sail on, O Union, strong and great!
Humanity with all its fears,
With all the hopes of future years,
Is hanging breathless on thy fate!
We know what Master laid thy keel,
What Workman wrought thy ribs of steel,
Who made each mast, and sail, and rope,
In what a forge and what a heat
Were shaped the anchors of thy hope!

Fear not each sudden sound and shock,
'Tis of the wave and not the rock;
'Tis but the flapping of the sail,
And not a rent made by the gale!
In spite of rock and tempest's roar,
In spite of false lights on the shore,
Sail on, nor fear to breast the sea!
Our hearts, our hopes are all with thee,
Our hearts, our hopes, our prayers, our tears,
Our faith triumphant o'er our fears,
Are all with thee,—are all with thee!

OUR NATIONAL BANNER

O'er the high and o'er the lowly
Floats that banner bright and holy
In the rays of Freedom's sun!
In the nation's heart embedded,
O'er the Union newly wedded,
One in all and all in one.

Let that banner wave forever,
May its lustrous stars fade never,
Till the stars shall fade on high;
While there's right the wrong defeating,
While there's hope in true hearts beating,
Truth and freedom shall not die.

As it floated long before us,
Be it ever floating o'er us,
O'er our land from shore to shore;
There are freemen yet to wave it,
Millions who would die to save it,
Wave it, save it, evermore.

RECESSIONAL

God of our fathers, known of old—
Lord of our far-flung battle line—
Beneath whose awful hand we hold
Dominion over palm and pine—
Lord God of Hosts, be with us yet,
Lest we forget—lest we forget!

The tumult and the shouting dies—
The captain and the kings depart—
Still stands thine ancient sacrifice,
An humble and a contrite heart.
Lord God of Hosts, be with us yet,
Lest we forget—lest we forget!

Far-called our navies melt away—
On dune and headland sinks the fire—
Lo, all our pomp of yesterday
Is one with Nineveh and Tyre!
Judge of the nations, spare us yet,
Lest we forget—lest we forget!

If drunk with sight or power, we loose
Wild tongues that have not thee in awe—
Such boasting as the Gentiles use
Or lesser breeds without the law—
Lord God of Hosts, be with us yet,
Lest we forget—lest we forget!

For heathen heart that puts her trust
In reeking tube and iron shard—
All valiant dust that builds on dust,
And guarding calls not thee to guard—
For frantic boast and foolish word,
Thy Mercy on thy people, Lord! Amen.

—Rudyard Kipling.

THE FOURTH OF JULY

To the sages who spoke, to the heroes who bled,
To the day and the deed, strike the harp-strings of glory
Let the song of the ransomed remember the dead,
And the tongue of the eloquent hallow the story!
O'er the bones of the bold
Be the story long told
And on Fame's golden tablets their triumphs enrolled,
Who on freedom's green hills freedom's banner unfurled,
And the beacon-fire raised that gave light to the world.

They are gone—mighty men!—and they sleep in their fame;
Shall we ever forget them? Oh, never! no never!
Let our sons learn from us to embalm each great name,
And the anthem send down—"Independence Forever!"

Wake, wake, heart and tongue!
Keep the theme ever young;
Let their deeds through the long line of ages be sung,
Who on freedom's green hills, freedom's banner unfurled,
And the beacon-fire raised that gave light to the world!

THE FOURTH OF JULY

Day of glory! Welcome day!
Freedom's banners greet thy ray;
See! how cheerfully they play
With thy morning breeze,
On the rocks where pilgrims kneeled,
On the heights where squadrons wheeled,
When a tyrant's thunder pealed
O'er the trembling seas.

God of armies! Did thy stars
On their course smite his ears,
Blast his arm, and wrest his bars
From the heaving tide?
On our standard, lo! They burn,
And, when days like this return,
Sparkle o'er the soldier's urn
Who for freedom died.

God of peace! Whose spirit fills
All the echoes of our hills,
All the murmurs of our rills,
Now the storm is o'er,
Oh, let freemen be our sons,
And let future Washingtons
Rise to lead their valiant sons
Till there's war no more.

—John Pierpont.

LABOR DAY

First Monday in September

This day has been set aside to consider the claims of labor and the interests of laboring men. We mean by *labor,* manual labor,—not intellectual, professional, or business labor; and by *laborers,* those that work with their hands in factories and shops, on the farms and railroads, in mines and quarries. We are concerned only with the school exercises. Since this is a legal holiday, it is fitting that the ordinary work of the school should pause and the claims of labor—as just defined—should be considered. The message of the day is as important as any that we have considered; but it must be treated in a broadly sympathetic way. We are to reflect that labor is the foundation on which all material prosperity rests. It is easy to pass from that to a still higher point of view. He who labors is doing a service that results in increased comfort and happiness to all. We are to look beyond the clothes, the grime and dirt on hands and face, and see the real man—one who is doing a necessary service, one is to be respected for his work. Let the teacher earnestly endeavor to impress that thought on her pupils.

Room Decorations

No especial decorations are necessary. Flags and flowers are appropriate. A sentence or so from extracts that now follow, written on the board, will serve to set off the room and emphasize the lesson of the day. Patriotic songs are appropriate, but any good ringing school songs are excellent. In addition to the music and opening remarks of the teacher, the pupils will read selections and declaim suitable poetical extracts, such as we arrange on the following pages. Orations, essays and papers are hardly suitable for this occasion.

THE TOILER

Round swings the hammer of industry, quickly the sharp chisel rings,
While the heart of the toiler has throbbings that stir not the hearts of kings,—
He's the true ruler and conquerer, he's the true king of his race,
Who nerveth his arm for life's combat, and looks the stern world in the face!

Blessed is that child of humanity, happiest man among men,
Who, with hammer or chisel or pencil, with rudder or ploughshare or pen,
Laboreth ever with joy and with hope through the years of busy life,
To win home and its happy contentment, with loving children and wife.

THE NOBLES OF THE EARTH

Who are the noblest of the earth,
The true aristocrats,
Who need not bow their heads to lords,
Nor doff to kings their hats?
Who are they but the men of toil,
The mighty and the free,
Whose hearts and hands subdue the earth
And compass all the sea?

Who are they but the men of toil
Who cleave the forest down,
And plant amid the wilderness,
The hamlet and the town.
Who fight the battles, bear the scars,
And give the world its crown
Of name, and fame, and history,
And pomp of old renown?

These claim no gaud of heraldry,
And scorn the knightly rod;
Their coats of arms are noble deeds,
Their peerage is of God!
They take not from ancestral graves
The glory of their names,
But win, as once their fathers won,
The laurel wreath of fame.

SONG OF STEAM

Harness me down with your iron bands,
Be sure of your curb and rein,
For I scorn the strength of your puny hands
As a tempest scorns a chain.
How I laughed as I lay concealed from sight
For many a countless hour,
At the childish boasts of human might,
And the pride of human power.

When I saw an army upon the land,
A navy upon the sea,
Creeping along, a snail-like band,
Or waiting the wayward breeze;
When I marked the peasant faintly reel
With the toil that he daily bore,
As he feebly turned the tardy wheel,
Or tugged at the weary oar;

When I measured the panting courser's speed,
The flight of the carrier dove,
As they bore the law a king decreed,
Or the lines of impatient love,
I could but think how the world would feel,
As these were outstripped far,
When I should be bound to the rushing keel,
Or chained to the flying car.

Ha! ha! ha! they found me at last,
They invited me forth at length,
And I rushed to my throne with a thunder blast,
And laughed in my iron strength!
Oh, then ye saw a wondrous change
On the earth and ocean wide,
Where now my fiery armies range,
Nor wait for wind or tide.

Hurrah! hurrah! the waters o'er,
The mountain's steep decline;
Time—space—have yielded to my power;
The world, the world is mine!
The rivers the sun hath earlier blest,
Or those where his beams decline,
The giant streams of the queenly West,
Or the Orient floods divine.

The ocean pales wherever I sweep
To hear my strength rejoice,
And monsters of the briny deep
Cower trembling at my voice.
I carry the wealth of the lord of earth,
The thoughts of his godlike mind,
The wind lags after my going forth,
The lightning is left behind.

TO LABOR IS TO PRAY

Pause not to dream of the future before us;
Pause not to weep the wild cares that come o'er us.
Hark, how Creation's deep musical chorus,
Unintermitting, goes up into heaven,
Never the ocean wave falters in flowing;
Never the little seed stops in its growing;
More and more richly the rose-heart keeps glowing,
Till from its nourishing stem it is riven.

"Labor is worship!" The robin is singing;
"Labor is worship!" the wild bee is saying;
Listen! that eloquent whisper, upspringing,
Speaks to thy soul from out Nature's great heart.
From the dark cloud flows the life-giving shower;
From the rough sod blows the soft-breathing flower;
From the small insect, the rich coral bower;
Only man in the plan, shrinks from his part.

Labor is rest—from the sorrows that greet us;
Rest from all petty vexations that meet us;
Rest from the sin-promptings that ever entreat us;
Rest from the world-sirens that lure us to ill.
Work—and pure slumber shall wait on thy pillow;
Work,—thou shalt ride over Care's coming billows;
Lies not down wearied 'neath woe's weeping willow,
Work with a stout heart and resolute will!

Droop not,—though shame, sin, and anguish are round thee
Bravely fling off the cold chain that hath bound thee!
Look to the pure heaven smiling beyond thee!
Rest not content in thy darkness,—a clod!
Work for some good, be it ever so slowly!
Cherish some flower, be it ever so lowly!
Labor!—all labor is noble and holy;
Let thy great deed be thy prayer to thy God.

GOOD NIGHT TO THE LABORER

Good night,
To each weary toil-worn wight!
Now the day so sweetly closes,
Every aching brow reposes
Peacefully till morning light.
Good night!

Home to rest!
Close the eye and calm the breast;
Stillness through the streets is stealing
And the watchman's horn is pealing,
And the night calls softly, "Haste!
Home to rest!"

Sweetly sleep!
Eden's breezes round ye sweep.
O'er the peace-forsaken lover
Let the darling image hover,
As he lies in transport deep.
Sweetly sleep!

So, good night!
Slumber on till morning light!
Slumber till another morrow
Brings its stores of joy and sorrow;
Fearless in the Father's sight,
Slumber, on. Good night.

THE VICTORIES OF LABOR

Most interesting is the contemplation of the victories achieved by the hand of labor—victories far greater than any achieved by physical force on the field of battle; for its conquests are wrested from nature. The very elements are brought under subjection and made to con-

tribute to the good of man. It displays its triumphs in a thousand cities; it glories in shapes of beauty; it speaks in words of power; it makes the sinewy arm strong with liberty, the poor man's heart rich with content, crowns the swarthy and sweaty brow with honor, dignity, and peace. It is one of the best regulators of practical character. It evokes and disciplines obedience, self-control, attention, application, and perseverance, giving a man deftness and skill in his physical calling, and aptitude and dexterity in the affairs of ordinary life.

CONQUESTS OF LABOR

Labor explores the rich veins of deeply buried rocks, extracting the gold and silver, the copper and tin. Labor smelts the iron, and molds it into a thousand shapes for use and ornaments, from the massive pillar to the tiniest needle; from the ponderous anchor to the wire guaze; from the mighty fly-wheel of the engine to the polished purse-ring or glittering bead. Labor hews down the gnarled oak, shapes the timbers, builds the ship, and guides it over the deep, bringing to our shores the produce of every clime.

PLEASURES OF LABOR

Alas for the man or woman who has not learned to work! They are but poor creatures. They know not themselves. They depend on others for support. Let them not fancy they have a monopoly of enjoyment. They have missed the sweetest pleasures of life, even the pleasures of self-reliant feeling, born of vanquished difficulties. They know not the thrill of pleasures experienced by him who carries difficult projects to a successful termination. Each rest owes its deliciousness to toil, and no toil is so burdensome as the rest of him who has nothing to tax and quicken his powers. They do not realize, in their blind pride, what labor has done for them. It was labor that rocked them in their cradle and nourished their pampered life. Without it the very garments on their backs would be unspun. Man is indebted to toil for the meanest thing that ministers to his wants, save only the air of heaven, and even that, in God's wise providence, is breathed with labor.

WHAT WE OWE TO LABOR

All that is great and precious is acquired only through labor. Without it civilization would relapse into barbarism. It is the forerunner and indispensable requisite to all the sweet influence of refinement. It is the herald of happiness, and makes the desert to blossom as a garden of roses. It whitens the sea with sails, and stretches bands of iron across the continent. It is labor that drives the plow, scatters the seed, and causes the fields to wave in golden harvests for the good of man. It gathers the grain and sends it to different regions of the earth to feed other millions toiling in less favored channels there. Labor gathers the gossamer web of the caterpillar, the cotton from the fields, and the fleece from the flocks, and weaves them into raiment, soft, warm, and beautiful. The purple robe of royalty, the plain man's sober suit, the fantastic dress of the painted savage, and the furry coverings of Arctic lands are alike the results of its handiwork, and proofs of its universal sway and honor.

ALL WORK HONORABLE

All honest work is honorable. If your occupation be not so high-sounding as you would like, still it is better to work faithfully at this until opportunity opens the door to something higher. Because you do not find just what you want, to refuse to work at all, to play the drone, is to act unworthy of yourself and of your destiny. Neither is it beneath you to make yourself useful regardless of what your position and wealth may be. Instead of its being disgraceful to engage in work, it is especially honorable. The most illustrious names in history were those of hard workers. No one whom posterity delights to honor ever dreamed or idled his way to fame. To be idle and useless is neither an honor nor a privilege. The noblest man on earth is he who puts his hands cheerfully and proudly to honest labor, and goes forth to conquer honor and worth. Labor is mighty and beautiful. The world has long since learned that man cannot be truly man without employment. We do not see a man's nobility in dress and toilet adornments, but in the sinewy arm, roughened, it may be, by hardy, honest toil, under whose farmer's or mechanic's vest a kingly heart may beat. Exalt thy adopted calling or profession. Look on all labor as honorable, and dignify the task before thee, whether it be in the study, office, counting room, workshop or furrowed field. There is equality in all, and the resolute will and pure heart will ennoble either.

WORK

The comforter of sorrow and of care;
The shortener of ways prolonged and rude;
The lightener of burdens hard to bear;
The best companion 'mid the solitude;
The draft that soothes the mind and calms the brain;
The miracle that lifts despair's thick murk;
When other friends would solace bring, in vain,
Thank God for work!

That boon for which the prince in splendor sighs
But which attends the humble peasant's lot;
Without which, castles but as prisons rise,
And with which prisons crush but strangle not.
The sum of life; all evil's sovereign cure;
The measure of employer as of clerk;
The true nobility's investure—
Thank God for work.

EMPIRE DAY

By George H. Locke
Chief Librarian, Toronto, Ontario

For more than 60 years the Queen's Birthday, the anniversary of the birth of Queen Victoria, was celebrated in Canada as perhaps no other holiday was. The reason was seasonal as well as national. It was the announcement that summer had come, that fishing was good, that there was no danger to even the tenderest plant in the garden, and that all nature was in a joyful mood.

It became so fixed an institution that even to this day, though we have had two monarchs since Victoria's death, it is called by all the older people the Queen's Birthday. It was made a fixed legal holiday under the name of Victoria Day. Then with the growing feeling in Canada, similar to that in the United States, that it is the part of wisdom in the development of citizenship to explain to the young the significance of these holidays, there was set apart by the educational authorities of the provinces the school day next preceding Victoria Day and this was to be called Empire Day. It is not a holiday. It is a day on which high ideals of citizenship are discussed and when, through essays and exercises, songs and stories, are explained the glories of the Empire and the part that Canada shared in them as one of the nations of the British Commonwealth.

An Aid to Teachers

The department of education of each of the provinces sends out yearly a booklet of suggestions for the observance of this day. For instance, from 1915 to 1919 the booklets had to do with the great war in which for five years our boys were engaged; and for 1920 and 1921, with some of the problems of Empire that arose out of the war. Since 1923 the program has been left more to the initiative of the teachers than in former years, for it has now become a well established custom in the provinces.

The booklets of the departments of education give not only sample programs but also extracts from modern literature upon questions of the day which concern the country, and quotations from the speeches of public men. These extracts and quotations are of especial help to teachers who find it difficult to carry out a program or who teach in neighborhoods having few facilities for books bearing on the subject.

As an example of this feature take a short article in one of these booklets by Sir John Willison, the Canadian correspondent of *The Times* of London, Eng., on "The New Status of Canada in the British Empire":

"There was an old notion that Great Britain and Ireland constituted the British Empire. Loyalty to the Empire was interpreted as loyalty to Great Britain. The people of Canada, Australia, and New Zealand were recognized as subjects of Queen Victoria, but in the common conception the "colonies" were not actual partners in the Empire, but subordinate countries under an Imperial government in London. It was natural, therefore, that Canadians should sometimes wonder if they had a full citizenship in any country, and where devotion to Great Britain ended and devotion to Canada began.

"But in the new conception of Empire, there need be neither confusion nor conflict. Canada is a nation within the Empire, and the primary allegiance of the Canadian is to his own country, as British subjects in the United Kingdom are primarily concerned in its conditions and problems. The Canadian is a subject of King George, but he is not a subject of Mr. Lloyd George, or whoever may happen to be Prime Minister of Great Britain, nor is he under the sovereignty of the British Parliament. As the Prince of Wales said, in a memorable speech at Toronto: 'The old idea of an empire, handed down from the traditions of Greece and Rome, was that of a Mother Country surrounded by daughter states which owed allegiance to the Mother Country. But the British Empire has long left that obsolete idea behind, and appears before us in a very different and far grander form. It appears before us as a single State composed of many nations of different origins and different languages, which give their allegiance, not to the Mother Country but to a great common system of life and government.' And he added: 'The Throne stands for a heritage of common aims and ideals, shared equally by all sections, all parties, and all nations within the British Commonwealth.'

"In the last quarter of a century there have been revolutionary changes in the spirit and outlook of the British peoples. The Great War accelerated the movement towards Imperial unity, but the forces which brought the British nation together in common effort and common sacrifice were living and vital before the supreme hour arrived. Canadian soldiers moved to the colours, not in response to any demand from Great Britain, but in instinctive and almost unconscious obedience to the appeal of an Imperial citizenship. They did not ask themselves where or how this Imperial patriotism had been nourished, nor what was the relative duty of Canada

or Great Britain in the great conflict in which the Empire had been involved. What Canada did when the Empire was in danger was what Prince Edward Island or British Columbia would do if Canada were in danger. But the people of Prince Edward Island or British Columbia would not be less loyal to their own Provinces because of the instant recognition of their obligation to defend the integrity of the Dominion. Nor were Canadians less loyal to Canada when they gave their blood and treasure to guard and maintain the British Commonwealth.

"It has been very clearly demonstrated that there is no conflict between Canadian patriotism and devotion to the common Empire. What has to be realized is that the first duty of Canadians is to develop their own country within the Empire, but not in any spirit of subservience to Great Britain. In proportion as Canada increases in power and prestige, its authority in the Empire becomes greater, and more and more Canadian ideals are expressed in Imperial policy and outlook. We have reconciled Colonial autonomy and Imperial sovereignty. We shall go on step by step as common interests may dictate and practical experience direct. Canadians recognize that they must share the burden of defence, the people of the British Isles understand that the Dominions must determine their own status in the Empire, and all British subjects now admit that equal privileges in the Empire involve equal duties and responsibilities. If that be granted, and there, after all, was the secret of unity in the war, the constitutional machinery will be adjusted to give effect to the sentiment which pervades and dominates all portions of the Empire. Moreover, if the necessity for more definite constitutional machinery should arise, the genius of British statesmen in the Dominions and in the Mother Country, supported by the common will of the British peoples, will forge new bonds of union and establish ever more firmly and securely the foundations of the Imperial structure.

"But, just as Canadians have municipal and provincial interests separate from purely national interests, so we have national interests which are distinct if not wholly separate from Imperial considerations. We could not hope to develop a robust national sentiment in Canada if we had less freedom of action or utterance than the people of Great Britain possess. Nor can we have a complete citizenship unless through some Imperial Council or Cabinet we are able to affect the policy of the Empire in all those relations which involve its defence and security. We must feel that the Throne is represented as truly by the Government at Ottawa as by that at Westminster, that there is no compulsory dependence in our connection with Great Britain, and that our direct obligation is to the Imperial statesmen who administer the affairs and determine the policy of Canada within the Empire. Cooperation with Great Britain in the concerns of Empire does not mean subordination to the Mother Country nor any recognition of the authority of British statesmen within the boundaries of Canada. The true attitude of the Canadian towards the Dominion is that of the British subject in London or Manchester or Edinburgh towards the United Kingdom; as upon all British citizens in whatever part of the Empire they live, there is a supreme obligation to the common Empire, as the fortress of that Imperial power which protects all the British nations. There is a sense in which the Canadian is not British, and yet is never so British as when he resolves that Canada shall be powerful in the Empire, and realizes that, by guarding the honour and dignity of his own country, he best serves the Imperial Commonwealth."

A Typical Program

Opening exercises.

Hymn.

O God of Bethel, by whose hand
Thy people still are fed;
Who through this weary pilgrimage
Hast all our fathers led.

Through each perplexing path of life
Our wandering footsteps guide;
Give us each day our daily bread,
And raiment fit provide.

Such blessings from Thy gracious hand
Our humble prayers implore;
And Thou shalt be our chosen God,
And portion evermore.

A talk by the teacher on the theme of the poem printed above. The text might very well be taken from the words, "God of our fathers be the God of their succeeding race."

Reading or recitation, "The Recessional," by Kipling.

An essay by one or more pupils upon the thoughts of this poem with a warning against overweening pride, selfish conceit, etc.

"The Maple Leaf."

A geographical trip around the Empire with the use of maps.

"The Land of the Maple."

Reading of selections dealing with the Empire or parts thereof taken from the school readers by a number of pupils.

"O Canada."

AFTERNOON.

Appropriate Hymn.

The National Anthem.

The remainder of the afternoon might take the form of an excursion, a Field Day of games and sports, or competitions in physical drill for Strathcona Trust prizes.

COMPLETE INDEX

IN THE following pages there is printed a complete Index of all topics which are treated in this set of books.

In the minds of many people information regarding various phases of knowledge is contained only in special articles bearing black-face capital-letter headings. There is in this new ten volume REFERENCE WORK a vast array of facts which, while of value, are not of themselves of sufficient moment to demand treatment in separate articles. Such bits of information are found in the body of discussions of thousands of related subjects, but they are not accessible on a moment's notice. There is needed, therefore, a system of reference which will disclose their positions in the volumes.

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